AmigaUser

$3.50/ CAN. $4.50
APRIL 1989



WIN THE LOTTERY

...OR HAVE MORE FUN LOSING IT WITH OUR TYPE-IN AMIGA BASIC PROGRAM

SAILING INTO C

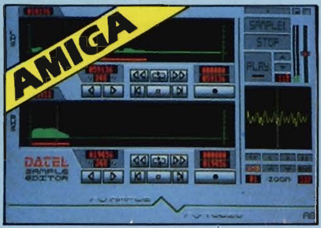
NEW COLUMN ON PROGRAMMING IN THE AMIGA'S NATIVE LANGUAGE

PLUS **EYE ON CLI • BUSINESS USERS' TIPS • MS-DOS ON THE AMIGA •** AND MORE

04
0 71896 48357 4

SPECIAL SUBSCRIPTION OFFER!
User group members—turn the page to find out how to save more than 50% on AmigaUser!

DATEL COMPUTERS





❑ AMIGA PRO SAMPLER STUDIO

- A top quality sound sampling system at a realistic price.
- All the usual features of a sampling system plus many more.
- 100% machine code software for realtime functions.
- Hires sample editing.
- Realtime frequency display.
- Realtime level meters.
- Files saved in IFF format.
- Adjustable manual/automatic record trig level.
- Variable sample rate and playback speed.
- Separate scroll line waveform windows plus zoom function with Edit windows for fine accurate editing.
- Hardware compatible with many other software packages.
- Software files can be used within other music utilities.
- Reverse, copy, mix, clear plus other edit facilities.
- Microphone and line input ¼" Jack and Din connections.
- 3D shot of sound waveform. Wave editor to design your own waveforms or adjust existing ones.

ONLY $199.99 COMPLETE SYSTEM, PLEASE STATE A500/1000/2000



❑ MIDI MUSIC MANAGER

- **At last a truly professional Midi package for the Amiga at a realistic price.**
- 8 realtime Midi tracks for record/playback
- Works with standard IFF files
- Adjustable track length – limited only by available memory
- Use as a multi-track Midi recording studio
- Works with many Midi interfaces including Datel Midi Master (see Ad) and Nimetics
- Editing facilities for corrections and track joining etc.
- Internal or External Midi clock control
- Play sampled sounds on Amiga from any Midi track
- Full dubbing – listen to one track while recording another
- Perfect companion for Pro Sampler Studio or any music application

ONLY $59.99



❑ MIDIMASTER

- Full Midi Interface for A500/2000/1000 (Please state model)
- Compatible with most leading Midi packages (inc. D/Music)
- Midi In – Midi Out x 3 – Midi Thru
- Fully Opto Isolated
- No need to pay more – Full Midi standard

ONLY $59.99



❑ PRINTER CABLES

- 25 pin 'D' to 36 way Centronics parallel lead.
- A 500 or 1000 please state.
- 1.2m length.

ONLY $14.99

- 25 pin 'D' to 25 pin 'D' – serial printer lead.
- A500 or 1000 – please state.
- 2m length.

ONLY $14.99



❑ DATA/SWITCH BOXES

- A/B type connect two printers to one computer or (vice versa).
- Centronics connections or RS232 (Serial) connections (25 pin) please state.

ONLY $34.99

- ABC type connect three printers to one computer (or vice versa).
- Centronics or RS232 connections.

ONLY $49.99

❑ AMIGA BURST NIBBLER

- Superfast disk copier will copy almost any commercial disk.
- Friendly user Interface – Mouse driven throughout.
- Completely compatible with Amiga multitasking system.
- Special 'Strategy Files' cope with even the most advanced protection schemes.
- Fast operation – typically around 80 seconds.
- Even decrypts many encoded programs including D.Print/Video Paint/Music/II etc.
- Works with one drive or two.
- Multiple copy option allows you to make many copies from one original.
- Copy 1 or 2 disk sides – up to 85 tracks.
- Unique 'INFO' analyser – displays vital disk parameters, including sector distribution, data dispersion, etc. etc.
- Special format parameters for non standard formats.
- Full verify option.
- Easy to use Icon driven program takes the mystery out of disk backup.
- Compatible with all Amigas.
- Regular updates available – we always ship the latest.

ONLY $49.99



❑ DATA ACQUISITION UNIT

- Turn your Amiga into a sophisticated measuring instrument capable of measuring a wide range of data inputs.
- Sample and display events from microseconds to hours – with amplitudes from millivolts to 50 volts.
- A Hardware/Software package with very high spec including: –

❑ **DIGITAL SCOPE DISPLAY** – 2 channel inputs. Manual or continuous display. Timebase 500ms/div to 20μs/div. – accurate to 5%

- 6 bit flash conversion gives 2 millions samples/sec.
- Adjustable trigger level. 5 x zoom function. Memory scan
- Load/Save functions, waveform enhancement, graph displays.
- Hardware contains onboard RAM and Crystal dividers

❑ **PLOTTER DISPLAY**

- 2 channel display
- Memory recall display
- Timebase range 1 sec to 10hrs per plot.

All features found on units costing thousands of pounds!

ONLY $179.99 for hardware/software/please state A500/1000/2000



❑ ROBOTARM
– Full Function
– 5 Axis Movement

- Explore the fascinating science of Robotics with this full feature Robot Arm.
- Human like dexterity – with 5 Axis of movement it is so versatile. It can manipulate small objects with amazing ability.
- Easily controlled using 2 Joysticks (any 9 pin type) or connect to your Amiga with our Interface + Software to give Computer/Robotic control (see Interface offer).
- Comes with Accessories including 'Finger' Jaws, Magnetic Attachment, Shovel Scoop, 4 Stabilizing Suction Base Legs, etc.
- Uses 4 HP2 batteries (not supplied) to power motor movement so uses no computer power.
- Self contained, ready to use (except batts, joysticks).

Complete with interface/software

ONLY $129.99



❑ EXTERNAL 3.5" DISK DRIVE

- Single or twin drive models available
- Slimline extra low profile – only 6" long!
- Top quality NEC drive mechanism
- Throughport allows daisy chaining other drives
- Superbly styled case in Amiga colours
- Fully compatible
- 1 meg unformatted capacity per drive
- Good cable length for positioning on your desk etc.
- Twin drive model takes up very little space
- Value for Money – before you buy a drive please compare the features – these drives have NEC mechanisms housed in superb cases. Some products are built to a price and not a standard. Don't spend a few pounds less and end up with 'rubbish' – and remember you are buying from the manufacturer.

ONLY $169.99 SINGLE DRIVE

$299.99 FOR TWIN DRIVE



❑ 512K RAM EXTENSION CARD

- Available with/without calendar clock option
- Simply plugs internally into a A500 slot
- Switch in/out with switch supplied
- Fitted in minutes – no soldering etc.
- With calendar/clock onboard time/date automatically booted
- Battery backed to retain time/date

ONLY $69.99 card only ∅ RAM

ONLY $89.99 card with clock only ∅ RAM

PLEASE PHONE FOR LATEST RAM PRICES.

ORDERS ONLY 1-800-782-9110

NOTE: – Technical or any other type of Enquiry cannot be answered by the staff on this number.

TECHNICAL SUPPORT CUSTOMER SERVICE (702) 454-7700

MONDAY THRU SATURDAY 9am to 5pm PACIFIC TIME
EXTRA SHIPPING REQD. OUTSIDE CONTINENTAL U.S.

VISA

Add $4.00 Shipping/Handling
CHECKS/MONEY ORDER/CODS ACCEPTED

DATEL COMPUTERS
3430 E. TROPICANA AVENUE, UNIT #67, LAS VEGAS, NV 89121

Announcing an exclusive offer for user group members—a subscription to

AmigaUser

at more than 50% off the cover price!

Dear Amiga User Group Member:

You're reading this magazine because you take Amiga computing as seriously as we do. And you belong to a user group for the same reason.

So we know you'll want to take advantage of this special offer to order 10 new or renewed subscriptions to ***AmigaUser*** for only $19.95 each!

Of course, you know that ***AmigaUser*** is written specifically for computerists like those in your group—users who can never read enough about the Amiga. Every page is packed with informational, educational, and just plain fun features like:

- Detailed **Reviews** of software and peripherals—many of them spanning three or four pages—by the foremost authorities in the field.
- Exclusive **Entertainment** coverage by Arnie Katz and Bill Kunkel, gurus of computergaming.
- Type-in **Programs** in Amiga BASIC and C—an inexpensive way to add to your software library, and the best way to learn programming.
- A timely and comprehensive **News** section offering information on all coming products—many of them not sold in stores or advertised anywhere.
- Regular **Columns** like **Eye on CLI**, offering instruction on the Command Line Interface; **Exec File,** demonstrating ways to utilize the Amiga in a small business environment; and **C-Port**, a step by step approach to learning to program in the C language on the Amiga.

Our degree of indepth coverage is not for everybody. It is for users like those in your group, who thirst for all the information they can get, in all the detail that's available. If you want to push your Amiga to its uppermost limits, you need to read ***AmigaUser***—every month!



FREE BONUS!

For signing up your friends, you'll get a free copy of the ***AmigaUser* Program Disk,** Volume I—containing all the type-in programs from our May 1988 through January 1989 issues! Normally sold at the bargain price of $7.95, the disk contains games like **ABM**—productivity programs like **Mailbox**—utilities like **Matrix Pattern** and **Shade Select**—all non-public domain software that is not available elsewhere! (See page 20.)

The regular subscription price for 12 monthly issues of ***AmigaUser*** is $27.95. That's already a $14.00 savings over the newsstand price.

But if your user group orders a total of 10 one year subscriptions, you'll be eligible for a special price of just $19.95 each! That's less than half the newsstand cost—an $8.00 savings over the already low subscription rate—and the cheapest 12-issue subscription price we've ever offered!

The 10 subscriptions can be distributed among as many members or as few members as you desire—one year for Joe T., three years for Mary G., etc. Current subscribers can extend their subscriptions to help you reach the required 10. Just have the participating members fill in their names, addresses, number of years desired, and other information on the coupon on the reverse side.

← Circle #259 on Reader Service Card

But act quickly, because this offer is valid only until April 30. After that date, you'll have to pay the regular subscription price.

As a bonus to you for signing up your fellow members, we'll send you a copy of the *AmigaUser* Program Disk, described on the reverse side (and in greater detail in the ad on page 20).

Don't miss out on this opportunity to help your fellow members get the best Amiga magazine for their needs at the best price ever!

Yours truly,

David Allikas
Publisher

Send coupon to *AmigaUser* Subscription Dept., Ion International Inc., 45 West 34th Street—Suite 500, New York, NY 10001. Be sure to enclose full payment or complete credit card information. Call 212-239-0855 with any questions.

Send the free disk to (name and address): ____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

Enter ____ year's subscriptions at $19.95 each for:
Name____________________
Address____________________
City__________State________Zip________
☐ Check or money order enclosed: $__________
Bill my ☐ MasterCard ☐ VISA
Card No. __________Expiration Date__________
Signature____________________

AmigaUser

CONTENTS

DEPARTMENTS

COLUMNS

FEATURES

Cover photography by Steven Hunt/The Image Bank

You can receive free additional information on most of the products advertised or mentioned in *AmigaUser!* Turn to page 51.

ISSUE NO. 8 APRIL 1989

AmigaUser (ISSN #1040-8940) is published monthly by Ion International Inc., 45 W. 34th St., Suite 500, New York, NY 10001. Subscription rate: 12 issues for $27.95, 24 issues for $48.95 (Canada and elsewhere $36.95 and $63.95 respectively). Application to mail at second class postage rates is pending at New York, NY 10001 and additional mailing offices. Postmaster, send address changes to *AmigaUser*, 45 W. 34th Street, Suite 500, New York, NY 10001. Direct all address changes or matters concerning your subscription to *AmigaUser*, P.O. Box #341, Mt. Morris, IL 61054 (phone: 800-435-0715 or 815-734-4151). Editorial inquiries and review samples should be sent to *AmigaUser*, 45 W. 34th St., Suite 500, New York, NY 10001.

VIEW FROM THE BRIDGE

Forgive us for leading off this month's *View from the Bridge* with an advertisement, but included in this issue is an offer so special that we don't want to risk your missing it. If you're a member of a user group, or if you have nine friends who will lie along with you, you can save $8.00 on the already money-saving subscription price to *AmigaUser*. At only $19.95 for 12 issues, signing up your fellow Amigaphiles should be easy—but we'll still send you a free copy of the *AmigaUser* Program Disk, Volume I for your efforts. And if those nine friends of yours crack under police interrogation, we'll guarantee delivery of all magazines to the correct cell block! For details, see pages 4 and 5.

And for details on the April *AmigaUser*—look no further!

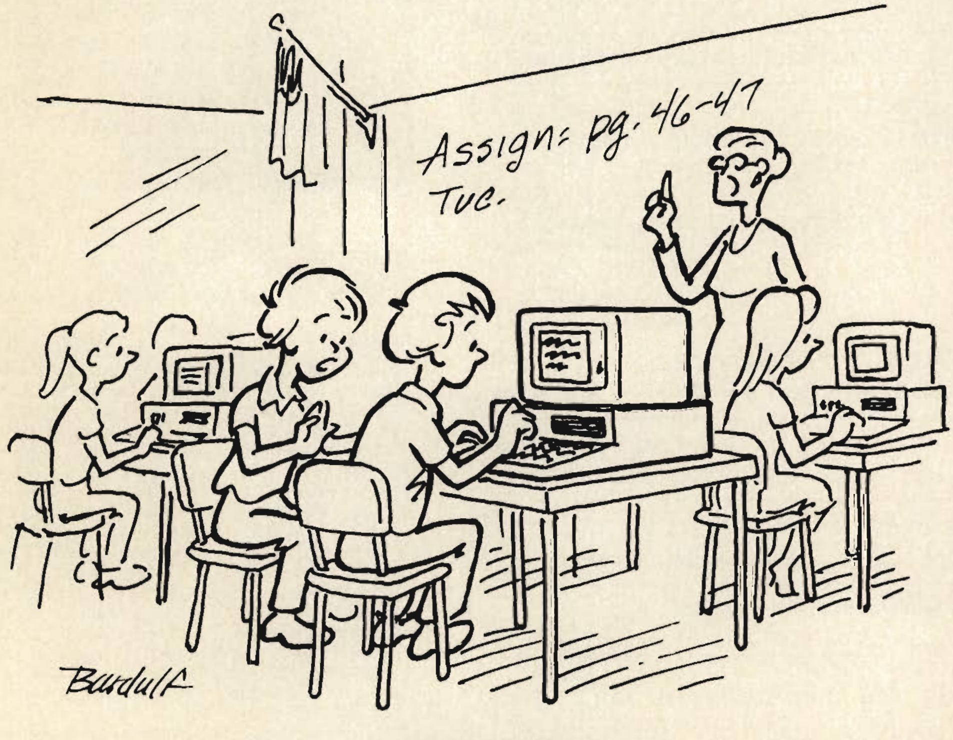
• While the fact that there's a wealth of software and hardware available for most popular Amiga applications is undeniably good for consumers, there's a down side as well—it's hard to choose, say, a word processor when there are at least a dozen different brands on your dealer's shelf. But if selecting Amiga products in general is difficult, in the field of Amiga video it is downright hazardous to your pocketbook. Because it's in Amiga video that the most sophisticated and expensive equipment is available; and it's in Amiga video that several products must most often be used in tandem to achieve a desired result. So we designed this month's *Amiga Video Products Guide* to save you a lot of leg work and perhaps a few costly mistakes in determining which hardware, software, and accessories are appropriate for your needs. More than 150 available products are listed and described. (Turn to page 59.)

• Mathematicians claim that lottery players can't improve their chances of retiring early by keeping track of which numbers come in most often—the winning numbers come up at random, and the laws of probability are thus of no use. Now, we happen to agree with the mathematicians—but many lottery players don't, and aren't about to be convinced! If you're one of those who stubbornly believe they can beat the odds, you might as well enjoy the convenience of trying to do it on the Amiga—with *Celebrate*. In fact, even mathematicians can have fun tracking winning numbers and searching for a pattern with Bob Spirko's latest type-in program. (Turn to page 28.)

• It's become increasingly clear to us from your letters and phone calls that the *AmigaUser* audience is one which desires to do more with their computers than run canned software. Those of you who don't already know how to program want to learn—and now you will, every month, in *C-Port*. In addition to being the author of programs like *AmigaUserTerm* (May '88) and *Amigavaders* (Feb. '89), Paul Maioriello is a teacher of the C language at the college level. So he will not lose sight of the fact, as authors of books on programming tend to, that there's a student on the receiving end of the information being offered. Also, you'll be able to write in with questions and comments, making *C-Port* more interactive than a textbook could ever be. But don't worry—we talked Paul out of the term paper and final exam! (Turn to page 55.)

• The field of Amiga entertainment software is poised for a great leap forward. The success of the Nintendo and Sega systems has reawakened interest in computer games among players and developers alike. The majority of games intended for multisystem release are now being programmed initially on the Amiga, which almost guarantees their release in Amiga format. And as the Amiga gaming field nears its inevitable boom, Arnie Katz, Bill Kunkel, and Joyce Worley will continue to follow it expertly in these pages. Their reviews this month include *Hybris, Virus, Sword of Sodan*, and *Warlock*. (Turn to page 39.)

We want your feedback. Write, call, or access our BBS (see p. 54). ***—David Allikas***



"Go ahead, ask it who that big-mouthed lady is in front of the classroom."

FIVE NEW JOYSTICKS • AMIGA 2000 EXPANDER • ONLINE SERVICES • HARD DISK BACKUP • GENLOCK • SONG DISKS • GAMES FROM INFOCOM, TITUS, TAITO, RAINBIRD, BRODERBUND • IMPROVED DIGITIZER • UPGRADES • PRICE REDUCTIONS • FREE SOFTWARE FROM MEMOREX

GENLOCK

Announced too late for inclusion in the Genlocks section of this month's Amiga Video Products Guide, Gen/One ($895) features Super-VHS Y/C and RS-170A outputs, full control over RGB input and video output levels, and variable control over computer timing relative to the video. Two comb filters remove unwanted chroma signals without degrading the luminance bandwidth. The genlock operates in three modes, with two overlay capabilities and selectable sync and blanking source. A buffered computer RGB output is provided.

Communications Specialties, 516-273-0404 (see address list, page 14).
Circle #262 on Reader Service Card

A-TALK UPGRADES

The following *A-Talk III* upgrade offers are available from Oxxi:

A-Talk Plus owners can upgrade to *A-Talk III* for $25 plus $4 shipping (CA residents add $1.63 sales tax).

Registered owners of *MaxiComm* can upgrade to *A-Talk III* for $50 plus $4 shipping (CA residents add $3.26 sales tax).

Current owners of *Diga!* and *OnLine* can trade in their original disk and the cover of their manual with $60 plus $4 shipping for *A-Talk III* (CA residents add $3.90 sales tax).

Oxxi, 213-427-1227 (see address list, page 14).
Circle #263 on Reader Service Card

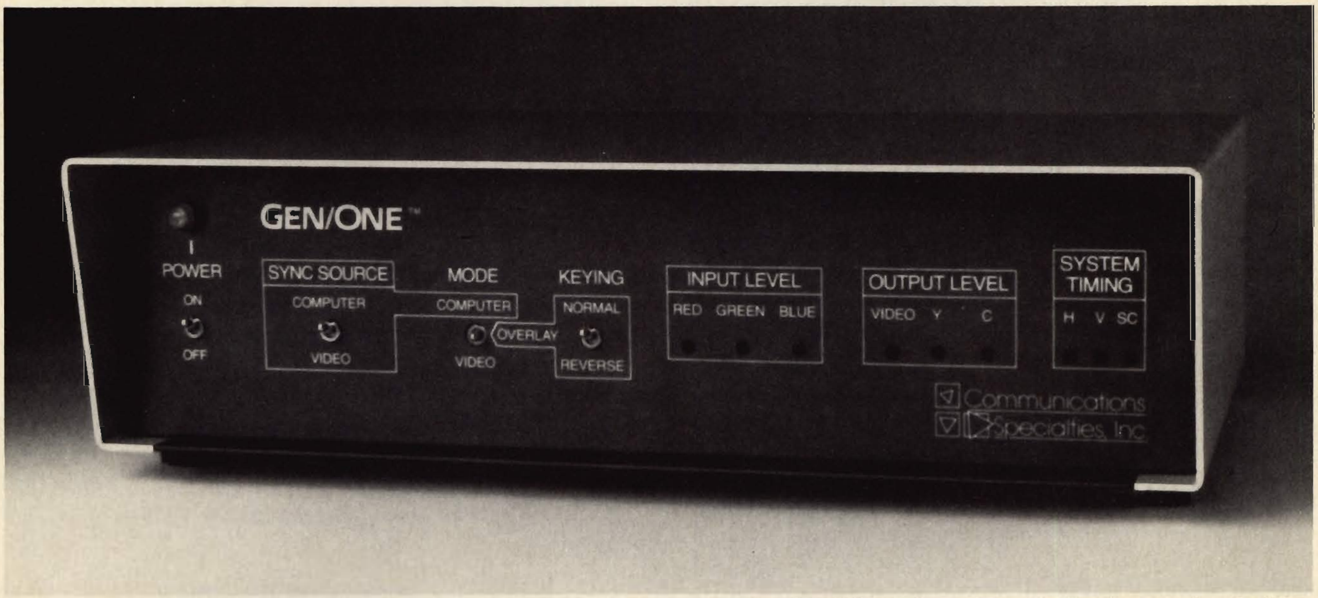
HARD DISK BACKUP

ExpressCopy ($44.95) can perform hard disk backups and file copies from hard to floppy disk at a rate of up to 1 meg per minute (600K per minute with verify of backup disks). Backup disks created have the same directory structure and file attributes as the original, and can be used normally. Both Normal and Fast FileSystem compatible disks can be written. Files to be copied can be selected by their DateStamp, filename pattern matching, Archive Bit, and source directory. Up to four copies of the backup disks can be created at once, or disks can be preloaded in up to four disk drives. New disks are automatically formatted and verified. Parameters for use in backups can be saved in configuration files. Backup restoration can be performed using any file copy program or directory utility, or *ExpresssCopy's* Restore program. The multitasking, non copy protected program can be used from both the CLI and Workbench.

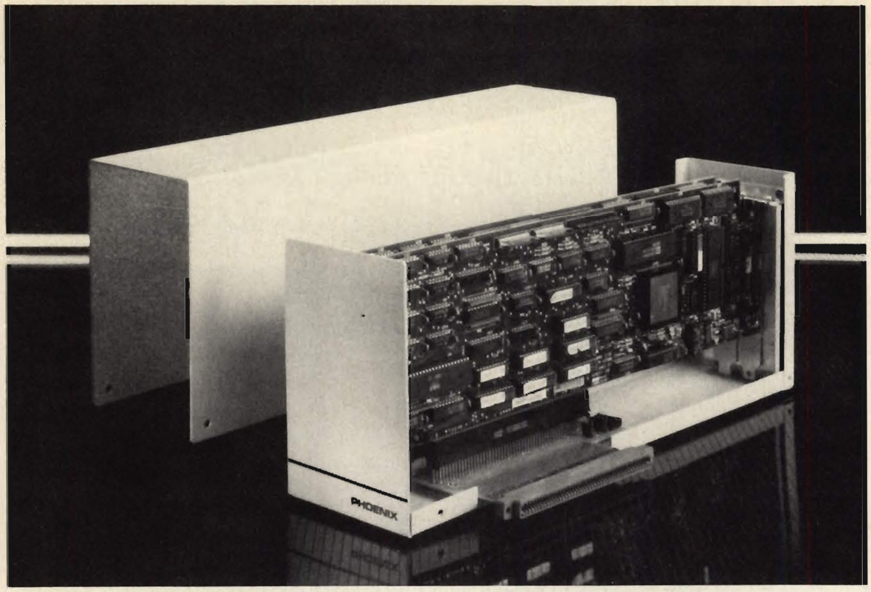
Express-Way Software, Inc., 314-474-2984 (see address list, page 14).
Circle #265 on Reader Service Card

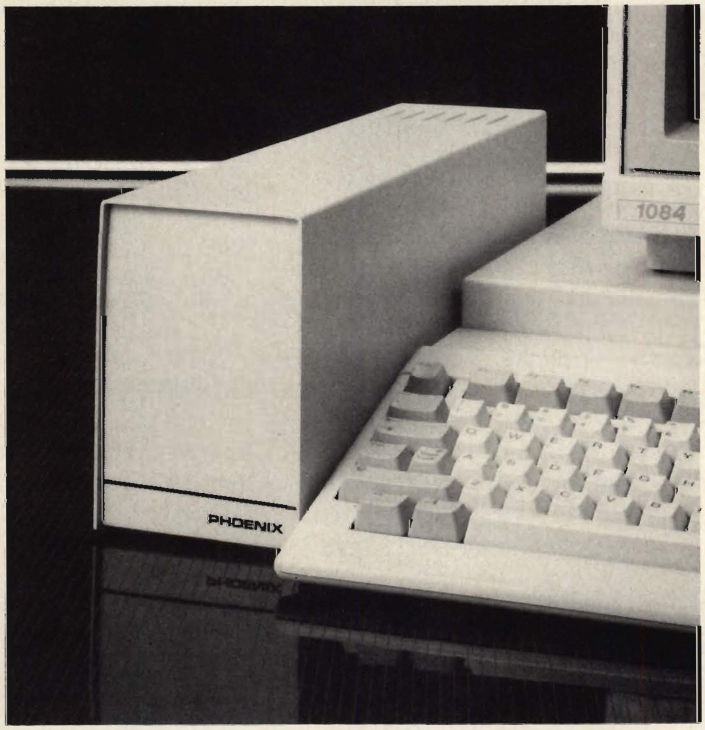
GOODBYE, OLD PAINT

It's a wise company that knows when it's beaten. Inkwell Systems has determined that a hardware incompatibility makes their Amiga Light Pen and Driver ($129.95) unusable with Electron-



The Gen/One genlock's two comb filters remove unwanted chroma signals without degrading the luminance bandwidth.





Phoenix's Expansion Chassis line includes versions for the 500 and 1000, with and without power supply. Two new models scheduled for first quarter release include a coprocessor slot with bus buffering and arbitration.

ic Arts' *DeluxePaint II,* and has furthermore determined that the situation is hopeless. The box and manual will henceforth bear a notice that the product is not compatible with the popular paint program. However, with the aid of the programmers at EA, Inkwell has succeeded in modifying the product to be compatible with the forthcoming *DeluxePaint III.*

Inkwell Systems, 619-268-8792 (see address list, page 14).
Circle #266 on Reader Service Card

AEGIS ONLINE

Aegis has reinstated their customer support bulletin board. The 24-hour BBS offers answers to technical questions, warranty and update information, product announcements, beta test information, product demos, direct access to Aegis programmers, and details on upcoming contests. The customer pays only for the phone call. Set your modem to 300, 1200, or 2400 baud, 8 data bits, no parity, and 1 stop bit, and dial 213-399-7316. Because the BBS offers full color support, ANSI terminal packages are recommended.

Aegis, 213-392-9972 (see address list, page 14).
Circle #267 on Reader Service Card

500/1000 EXPANDERS

Scheduled for first quarter release from Phoenix are the PEC-2530 and PEC-2130 expansion chassis. Like earlier models, they allow your A500 or A1000 to run all major A2000 cards. But in addition to the two 100 pin expansion slots previously offered, these latest boards include a coprocessor slot with bus buffering and arbitration. The internal power supply can run hard cards and up to 8 megs of RAM. The chassis is available in versions for the 500 (2530) or 1000 (2130). (The older versions can be purchased with or without the power supply.)

Phoenix Electronics, Inc., 913-632-2159 (see address list, page 14).
Circle #264 on Reader Service Card

FREE SOFTWARE

Memorex is offering free Amiga software to users who purchase any of their 125 different computer supply products. Each product has a point value of 3 to 25 associated with it: paper 10 points, disks 5 points, etc. 25 to 30 points qualifies you to receive most of the titles, from vendors like Accolade, Electronic Arts, Activision, and Software Publishing Corporation.

You can start collecting points with Memorex's new line of 3½" disks in multicolor 10-packs, containing two each of blue, green, yellow, orange, and red.

Memorex Corporation, 408-957-1000 (see address list, page 14).
Circle #281 on Reader Service Card

BETTER FUTURE

The improved FutureSound 500 audio digitizer ($119.95) for the 500 and 2000 records in true stereo and offers sampling rates up to 42,000 samples per second. The updated digital editing software includes a software switchable output filter, support for expansion memory up to 8 megs, type-in sampling rate and playback values, and an improved file handling system. Workbench 1.3 is supported, including the Fast File System, with provisions for hard disks, RAM disks, and VD0 devices.

Applied Visions, Inc., 617-494-5417 (see address list, page 14).
Circle #282 on Reader Service Card

GAME BOARD

The Game Vendors Forum has been

added to the CompuServe Information Service, offering users online support from computer game publishers. Two dozen vendors were online at press time, including Sierra, Spectrum HoloByte, SubLOGIC, Mindscape, and Activision. Customer support representatives, designers, and other technical staff are available to respond to questions, comments, and requests via the forum's message board. Forum members can exchange game hints, converse with other players, and download and try new game releases before buying.

CompuServe, 614-457-8600 (see address list, page 14).
Circle #283 on Reader Service Card

RIVER OF STICKS

New Amiga-compatible joysticks from Camerica, makers of the wireless Freedom Stick:

The Turbotronic joystick ($39.95) incorporates the look and action of the Freedom Stick in a new wired (10' cord) design. Individually adjusted speed control allows for automatic rapid fire action.

The Micro Master ($15.99), Magnum ($6.99), Warrior ($7.99), and Dragon ($9.99), four wired joysticks, all feature arcade style pistol grip.

Be sure to specify Commodore/Amiga format, as most of the above come in versions for multiple systems.

Camerica Ltd., 212-683-7810 (see address list, page 14).
Circle #271 on Reader Service Card

GAMES

From Titus ($44.95 each):

The deadly game of *Titan* is the rage of the year 2114, attracting capacity crowds and the most fearless adventurers. But all previous contestants have perished somewhere along the game's 80 levels. To succeed, you must guide a power sphere across immense synthetic worlds while avoiding assorted deadly obstacles.

F40 Pursuit Simulator puts you behind the wheel of the famous Ferrari, charged with a mission that will take you through four states at 200 mph speeds. To avoid police that will try to stop you, you must plan your route carefully from each state's onscreen map. Your car features the latest radar, enabling you to detect police road blocks. You'll experience 360 degree spins, chases, 3D road junctions, and more.

Knight Force matches you against the seven Sorcerers of Belloth. Banished to a remote corner of the Realm of the Dead, they learned from the Sinister Minstrel the secrets of operating the space-time gates. Now they are passing through the time gates, spreading chaos and disorder. You must find and seal the gates and defeat the sorcerers.

Titus Software Corporation, 818-709-3692 (see address list, page 14).
Circle #272 on Reader Service Card

Announced back in our November issue, Infocom's first illustrated text adventures had finally been released at press time. In addition to the previously described *Journey, Zork Zero,* and *Shogun, BattleTech: The Crescent Hawk's Inception* ($49.95) has been scheduled for spring release in Amiga format. As Jason Youngblood, training to operate the lethal BattleMechs (30 foot tall combat robots), you learn that your father has not returned from leading a squadron into space to head off an invasion. Now you must try to thwart the invasion and find your father. As you approach your final goal, the frequency of your battles will increase, as well as your level of skill—which you improve at various points in the game by visiting and fighting in The Arena. The role-playing adventure includes over four million locations.

Infocom, Inc., 617-492-6000 (see address list, page 14).
Circle #273 on Reader Service Card

An Amiga adaptation of *Falcon* ($49.95), the F-16 fighter simulator, lets you play alone or against an opponent on a second Amiga, a Macintosh, or an Atari ST. Five graduated difficulty levels allow the novice to learn to fly, while even accomplished pilots will find the highest level challenging. At



New joysticks compatible with the Amiga include the Turbotronic (above), the Magnum, Warrior, and Dragon (below), and Micro Master (not shown).



GRABBIT	20.59
GRAND SLAM TENNIS	31.25
GREAT STATES	24.99
GREAT STATES II	25.96
GRID, THE	34.34
GRIDIRON-FOOTBALL GAME	*9.95*
GUILD OF THIEVES	30.90
GUNSHOOT	22.72
HACKER II	27.46
HAICALC	30.80
HARDBALL	28.12
HARRIER COMBAT SIMULATOR	32.95
HARRIER MISSION	16.21
HEAD COACH	32.47
HEX	24.95
HITCHIKERS GUIDE	20.59
HOLLYWOOD HIJINX	27.47
HOLLYWOOD POKER	25.96
HOME BUILDERS CAD	129.96
HOT & COOL JAZZ	21.60
HOT LICKS	27.59
HUNT FOR RED OCTOBER	27.46
IMPOSSIBLE MISSION II	*32.46*
INDOOR SPORTS	31.22
INOVATOOLS I	51.96
INSANITY FIGHT	25.96
INSTANT MUSIC 1.2	33.00
INTELLITYPE	35.17
INTERCEPTOR	*37.95*
INTERCHANGE	29.22
INTERCHANGE CONVERSION	16.95
INTERCHANGE OBJECTS #1	16.95
INTO THE EAGLE'S NEST	28.56
INTROCAD	49.95
INVESTOR'S ADVANTAGE	64.97
INVISION (LIVE! EFFECTS)	*99.95*
IT'S ONLY ROCK & ROLL	21.60
J FORTH	68.74
JET	37.46
JET SET FONT SET	32.50
JINXTER	25.95
KAMPFGRUPPE	41.22
KARA FONTS	*54.95*
KARATE KID II	25.97
KARATE KING	15.56
KEY TO C	22.72
KICKWORK	19.46
KIDTALK	31.95
KINDERAMA	31.23
KINDWORDS	62.50
KING OF CHICAGO	34.34
KING'S QUEST I,II,III	32.95
KNIGHT ORC	30.90
KWIK SPEAK	28.04
LATTICE C 4.0	162.47
LATTICE C PROFFESIONAL	212.47
LAZERSCRIPT	28.10
LDEBUG LATTICE DEBUGGER	75.00
LEADER BOARD TORNA DISK	14.00
LEADER BOARD-GOLF GAME	27.00
LEARNING THE ALPHABET	19.46
LEATHER GODESSES	27.47
LEATHERNECK	25.96
LEISURE SUIT LARRY	26.40
LEXCHECK	26.85
LIBYANS IN SPACE	19.97
LIFE CYCLES AMIGA	19.46
LIGHTS! CAMERA! ACTION!	*49.95*
LINKWORD LANGUAGE SERIES	20.55
LINT (GIMPLE)	63.70
LION'S AMIGA ART STUDIO	58.95
LISP 1.3-BY METACOMCO	137.47
LITTLE DRAGON	12.96
LITTLE RED HEN	19.48
LOGIC WORKS	62.47
LOTTERY MAGIC	19.21
LURKING HORROR	25.96
MACROMODEM	48.10
MAD LIBS	12.48
MAGICAL MYTHS	32.47
MAGICIAN'S DUNGEON	21.84
MAJOR MOTION	*25.96*
MARAUDER II-DUPLICATION	27.47
MARBLE MADNESS	33.00
MASTER TYPE	27.47
MASTERING CLI	25.96
MATCH IT	25.71
MATH MAGICIAN	27.49

MATH TALK	31.25
MATH TALK FRACTIONS	24.95
MATH WIZARD	31.23
MATH-AMATION	64.95
MAVIS BEACON TYPING	30.89
MAXIPLAN 500	93.13
MAXIPLAN PLUS	124.40
MEAN 18 COURSE DISK	14.96
MEAN 18 GOLF	28.77
METACOMCO ASSEMBLER	68.72
METACOMCO PASCAL	68.72
METACOMCO SHELL	39.95
METACOMCO TOOLKIT	34.34
METASCOPE DEBUGGER	59.95
MICROFICHE FILER	69.95
MICROLAWYER	37.47
MIKE THE MAGIC DRAGON	16.95
MIND WALKER	34.34
MIND FOREVER	27.47
MISSION ELEVATOR	34.95
MODULA-2 DEVELOPER	103.09
MODULA-2 REGULAR	68.72
MOEBIUS	39.95
MONEY MENTOR C VERSION	59.98
MOONMIST	27.47
MULTI-FORTH	59.95
MULTI-PREFS	19.45
MUSIC MOUSE	51.35
MUSIC STUDENT	37.48
NEWSLETTER FONTS COLOR	29.95
NIMBUS 1:RECORD KEEPER	93.80
NINJA MISSION	13.00
OBLITERATOR	25.99
OFFSHORE WARRIOR	*25.96*
OGRE	32.46
OMEGA FILE	54.99
ONLINE 2.0	43.56
ORGANIZE	62.32
OUTLINE	31.25
PAGE FLIPPER PLUS F/X	*99.95*
PAGESETTER	93.72
PALADIN	25.95
PAWN, THE	30.90
PERFECT SCORE (SAT PROGRAM)	54.97
PHANTASIE	27.47
PHANTASIE 3	24.95
PHASAR 3.0 - FIN'L MGMT	62.48
PHOTON PAINT	*64.96*
PHOTON PAINT EXPANSION DISK	19.95
PHOTOSYNTHESIS	97.95
PINBALL I.Q.	19.46
PINK PANTHER	28.56
PIXMATE	45.47
PLANET PROBE	19.46
PLUTOS	19.46
PORTAL-ADVENTURE GAME	34.35
PORTS OF CALL	29.71
POWER PACK	22.95
POWERWINDOWS 2.0	62.46
PRE CALCULUS	36.33
PRINTMASTER PLUS	31.23
PRISM PLUS	45.43
PRO MIDI STUDIO	130.38
PRO VIDEO FONT SET #1	72.00
PRO VIDEO FONT SET #2	72.00
PRO VIDEO PLUS	184.95
PROBABILITY THEORY	36.22
PROFESSIONAL PAGE 1.1	247.50
PROJECT D	31.23
PROMISE:SPELLING CHECKER	34.36
PROWRITE 2.0	78.10
PUBLISHER PLUS	124.98
PUNCTUATION SERIES	19.46
PUPPY LOVE	18.68
Q-BALL	21.41
QUARTERBACK	45.47
QUESTRON II	32.46
QUICK MERGE	37.95
QUINTETTES	30.90
QUIZ MASTER	49.98
QUIZAM	23.10
R.R. AESOP'S FABLES	19.48
RAW COPY 1.3	38.97
READ & RHYME	31.23
READ-A-RAMA	31.23
REALM OF THE WARLOCK	*22.74*
REASON:AT&T WRITERS W.B	271.56
RETURN TO ATLANTIS	34.32

ROAD TO MOSCOW	29.97
ROADWAR 2000	27.47
ROADWAR EUROPA	29.21
ROADWARS	23.95
ROCKET RANGER	*32.46*
ROCKFORD	23.95
ROLOBASE PLUS	58.46
ROMANTIC ENCOUNTER	25.95
SAF T NET HD BACKUP	32.46
SANTA PARAVIA & FIUMACCIO	19.46
SARGON III	35.75
SCENERY DISK #11 EAST COAST	18.72
SCENERY DISK #7 EAST COAST	18.71
SCRIBBLE	62.32
SCULPT-3D	69.95
SDI:CINAMAWARE SERIES	34.34
SEASONS AND HOLIDAYS	21.60
SECONDS OUT BOXING	19.46
SEX VIXENS FROM SPACE	*25.96*
SHADOW GATE	31.23
SHAKESPEARE 1.1	*146.25*
SHANGHAI-STRATEGY GAME	27.46
SHERLOCK	27.00
SILENT SERVICE	25.95
SINBAD & FALCON	34.34
SLAYGON	25.96
SMOOTH TALKER	33.95
SOCIAL STUDIES	19.46
SOFTWOOD FILE SG	78.21
SOFTWOOD WRITER	62.48
SONIX (AEGIS)	49.98
SOUNDLAB MIRAGE	209.95
SOUNDQUEST EDITOR/LIBRARIANS	81.22
SOUNDSCAPE UTILITIES 1	35.71
SOURCE LEVEL DEBUGGER	57.16
SPACE FLIGHT	19.46
SPACE MATH	29.95
SPACE PORT	27.38
SPACE RANGER	13.00
SPACEQUEST	33.00
SPELLBOUND	25.96
SPELLER BEE	31.25
SPELLING IMPROVEMENT	19.95
STARFLEET I	29.95
STARGLIDER	29.50
STARGLIDER II	29.50
STATION FALL	27.47
STELLAR CONFLICT	25.95
STOCK MARKET-THE GAME	16.21
STRIP POKER	27.46
STRIP POKER DATA #4 OR #5	12.97
STUDIO FONTS V1 (COLOR)	29.95
STUDIO MAGIC	64.95
SUB BATTLE	24.95
SUPER HUEY-COPTER GAME	23.36
SUPERBASE	93.73
SUPERBASE PROFESSIONAL	195.00
SURGEON, THE	31.23
SYMPHONY SONGS (EACH VOL)	15.95
SYNTHIA	59.95
SYSTEMS MONITOR	28.95
T & L GALLERY	9.95
TALES FROM ARABIAN NIGHTS	31.95
TALKING COLORING BOOK	18.73
TANGLE WOOD	25.96
TELEGAMES	23.95
TELEWARS	24.97
TERRORPODS	25.77
TEST DRIVE	34.95
TEXTPRO	49.95
THAI BOXING	14.26
THE EXPLORER	32.47
THEXDER	23.95
THREE LITTLE PIGS	19.48
THREE STOOGES	35.95
THUNDERBOY	22.71
TIME BANDITS	22.09
TOOL CADDY	32.46
TRANSCONTINENTAL RAILROAD	25.96
TRIGONOMETRY	36.22
TRINITY	27.47
TRUE BASIC	68.72
TURBO	16.95
TURBO SILVER	129.95
TURBO SILVER UPGRADE	39.95
TV SHOW	65.01
TV TEXT	62.32
TXED PLUS	51.95

ULTIMA III	28.57
ULTRA DOS	37.95
UNCLE D CON SOUND TRATION	25.97
UNINVITED	34.34
VAMPIRE'S EMPIRE	29.21
VIDEO EFFECTS 3D	129.96
VIDEO VEGAS	24.10
VIDEOSCAPE 3D	124.98
VIDEOTITLER	99.95
VIRUS INFECTION PROTECTION	*32.46*
VIZAWRITE	93.75
VOCABULARY IMPROVEMENT	19.95
VYPER	21.95
W SHELL	31.16
WBEXTRAS	24.95
WESTERN GAMES	31.95
WINDOW PRINT II	22.75
WINNIE THE POOH	16.50
WINTER CHALLENGE	9.95
WINTER GAMES	27.46
WORD MASTER	29.95
WORD PERFECT	219.00
WORD PERFECT LIBRARY	84.50
WORKS, THE	124.97
WORLD GAMES	27.46
WRITE 'N' FILE	59.95
X-CAD	399.00
ZING	49.98
ZING KEYS	31.25
ZING! SPELL	57.95
ZOOM	21.95
ZORK TRILOGY	48.10
ZUMA FONTS VOL 1,2,3	21.85

HARDWARE

ALEGRA WITH 0K	166.95
ALPS ALQ224E COLOR PRINTER	599.00
AMIGA 2052 2 MEG RAM CARD	449.00
AMIGA LIVE!	270.00
AMIGA LIVE! 500	289.00
AMIGEN GENLOCK	179.95
ASDG 8 MEG BOARDS W/0K	CALL
BYTE BOX 0K-RAM OPTIONAL	249.00
C LTD 33 MB A1000 HD	*899.00*
C LTD 50 MEG HD	*995.00*
C LTD 512K UNPOPULATED	49.95
C LTD SCSI CNTRLR A1000	219.95
CA-880 FLOPPY DRIVE	199.00
CPS 500-POWER SUPPLY A500	74.97
EASYL TABLETS (ALL AMIGAS)	369.00
ECE MIDI 500/ 2000	48.71
ESCORT 2 UNPOPULATED	*249.00*
ESCORT 500 UNPOPULATED	299.00
EXP-1000 1M A500	479.95
EXP-1000 1M UNPOPULATED	219.95
FLICKER FIXER (HARDWARE)	*479.00*
FUTURE SOUND-AUDIOSAMPLER	142.20
IMPACT 20 MEG HARD CARD	*549.00*
IMPACT 48 MEG HARD CARD	*799.00*
IMPACT SCSI/1M 0K RAM	299.00
IMPACT SCSI/2M 0K RAM	319.00
MICRON 2 MEG FOR A2000	549.00
MIDI GOLD	64.20
MINISCRIBE 20MB 3.5" FAST	329.00
NEC P2200 PRINTER	418.75
NEC P5200 24 PIN PRINTER	CALL
OKIMATE 20/PLUG N PRINT	199.00
OVERDRIVE HD CONTROLLER	199.95
PANASONIC WV1410 CAMERA	224.96
PERFECT SOUND DIGITIZER	67.47
PERFECT VISION	169.95
SOUND SAMPLER	86.63
SPIRIT 0 MB FOR A1000	249.00
SPIRIT 0 MB FOR A500	149.00
STAR NB24-10	545.96
STAR NX1000 PRINTER	199.00
STAR NX1000 RAINBOW	279.95
STARBOARD 2 PRODUCTS	CALL
SUBSYSTEM 500	199.95
SUPERGEN	699.00
SUPRA 2400 MODEM	152.49
SUPRA DRIVE 20MB A500&A1000	699.00
SUPRA DRIVE 30MB A500&A1000	859.00
VI 2000 RF	79.95
XEROX 4020 INK JET COLOR	1140.00
XEROX 4020 STARTER KIT	156.00

Creative Computers is both a mail order company with a store's support and three store showrooms with mail order prices. If possible, drop by a store and you will be Amazed!

Store front addresses:

318 Wilshire Blvd, Santa Monica, CA 90401
Tues - Sat 11-7 PM, Sun 11-5 PM phone: (213) 394-7779
4453 Redondo Beach Blvd., Lawndale, CA 90260
Mon - Sat 11-7 PM phone: (213) 542-2292
2112 E. Thompson Dr., Ventura, CA 93001
Tues - Sat 11-7 PM, Sun. 12-5 PM phone: (805) 652-0325

MINIMUM ORDER: $20
SHIPPING INFO: Call for shipping rates.
INTERNATIONAL PHONE & MAIL ORDERS ACCEPTED
RETURN POLICY: Defective merchandise under warranty will be repaired or replaced. Returned product must be in original package. We do not offer any refund on defective products or for products that do not perform satisfactorily. We make no guarantees for product performance.
CONDITIONS: Creative Computers reserves the right to limit the sale of any items to local in-person pick-up only. Prices subject to change without notice.
WE ALSO RUN A 24 Hr. BBS: Call (213) 394-5988 with your modem.
SCHOOL AND LARGE COMPANY PURCHASE ORDERS ACCEPTED.

Visit one of our stores soon!!

Circle #175 on Reader Service Card



Played in real time,* Lost Dutchman Mine *has pause and game-save features.

Colonel level the simulation takes on the flight characteristics of the real F-16, allowing complicated maneuvers like the Immelmann, yo-yo's, loops, and scissors—but subjecting the pilot to occupational hazards like blackouts from pulling too many G's. The "Black Box" records the plane's path and that of any MiGs in the area, allowing "instant replay" for analyzing performance after a dogfight with the enemy. Real sounds like engine startup, machine gun firing, and missile launch are incorporated. Other features include four cockpit views, three new views from the tower, chase plane, or satellite, and zoom in/out for a better look at targets.

Spectrum HoloByte, 415-522-3584 (see address list, page 14).
Circle #274 on Reader Service Card

Lost Dutchman Mine ($49.95) is set in the Old West, in the legendary Superstition Mountains of Arizona. In the century since the secret of a fabulous gold mine died with an old German prospector, countless hopefuls have hunted for it in vain. Now it's your turn to wander the desert and mountains in search of the treasure. As an old prospector, you prepare for your adventure by loading up on food and supplies at the general store in the historic town of Goldfield, buying a burro at the livery stable, getting your wounds attended to at the doctor's office, or visiting the bank, jail, or assay office. Out in the desert, you fish in the river, pan for gold, and explore abandoned mines and caves. Threats to your well-being include snakes, bandits, renegade indians, freezing nights, and scorching days. You can try your luck at a game of cards in the saloon, or at catching one of the gold-robbing bandits roaming the desert with a price on his head. The game, which features digitized sound, MIDI compatible music, and animated sprites, requires 1 megabyte.

Magnetic Images Co., 602-265-7849 (see address list, page 14).
Circle #279 on Reader Service Card

Footman ($34.99) and *Vyper* ($39.99), originally released by Top Down, have been purchased, debugged, repackaged, and rereleased by Incognito Software, along with two new titles: *Snake Pit* ($34.99) and *Targis* ($39.99).

Incognito Software, 313-462-2148 (see address list, page 14).
Circle #280 on Reader Service Card

Though no date has been set for release of an Amiga version, MicroIllusions has bought the publishing rights to *Dondra—A New Beginning,* and will be producing all further installments in the *Questmaster* series.

MicroIllusions, 818-360-3715 (see address list, page 14).
Circle #278 on Reader Service Card

Rainbird has released two $19.95 scenario disks for use with *The Universal Military Simulator:*

The American Civil War: Scenario Disk One lets you design your own maps, order of battle, and objectives, or reenact the battles of Shiloh, Chattanooga, and Antietam.

Vietnam: Scenario Disk Two includes three significant firefights from the battles of Dak To—Hill 823, Ngoh Kam Leat, and Hill 875.

Rainbird, 415-322-0412 (see address list, page 14).
Circle #275 on Reader Service Card

From Broderbund:

Star Wars ($39.95) is seen from the cockpit of Luke Skywalker's X-wing fighter as he swoops in to destroy the Death Star. A computer chip plays the Star Wars theme music when the box is opened.

The latest in Maxis Software's line of System Simulations, *Sim City* ($44.95) allows you to design and control your own ideal metropolis, or assume control of one of seven world famous cities, including San Francisco in 1906 (before the quake), Tokyo in 1957 (before a monster attack), and Boston in 2010 (before a nuclear meltdown). Each city is detailed with moving traffic, construction, planes, boats, football games, and more. It's the player's job to improve the quality of life by taking action against natural disasters, pollution, crime, budget deficits, traffic, and other problems. While you do the planning and zoning, the Simulated Citizens (Sims) build and operate the city. Distributed by Broderbund.

Broderbund Software, 415-492-3200 (see address list, page 14).
Circle #276 on Reader Service Card

Two coin-op conversions from Taito scheduled for first quarter availability (no prices available):

Operation Wolf is set in the jungle, where terrorists hold innocent civilians hostage. Commandos attempt to free the prisoners by overtaking their captors in a weapons facility, routing them from a jungle hideout, and finally leading the hostages onto a rescue plane. To complete the game's six increasingly difficult missions, the players must overcome enemy gunboats, helicopters, and armored vehicles.

Bubble Bobble offers two 113-level challenges, the first of which must be completed before you advance to the second. The game's main characters, two tiny dinosaurs named Bub and Bob, score points by blowing bubbles, boxing up beasties inside them, and bursting them.

Taito Software, Inc., 604-984-3344 (see address list, page 14).
Circle #277 on Reader Service Card

PRINTER SHARING

The PrintManager 4tol Printer Sharing Device ($245) allows four computers to share a single printer. With the printer plugged into one of the device's five parallel ports and up to four computers plugged into the others, it scans the ports in sequence and prints the next available job automatically. All popular printers are supported, and no software is required.

PrintManager Inc., 800-642-5019 or 617-924-3952 (see address list, page 14).

Circle #286 on Reader Service Card

RE: SOURCE

New services available on The Source:

A recent addition to The Source's CHAT conferencing service, the CHAT NightClub offers a cheaper alternative to those $1.00 a minute party lines. Standard CHAT rates are $8.40 per hour; or pay a $25 monthly fee plus $3.90 per hour. If you sign up for the CHAT NightClub by May 31 you'll receive a free copy of the new "Talk Is Cheap" cassette by Keith Richards.

SourceMail, the electronic mail service, has been enhanced to allow the transmission of binary files within mail messages. This allows spreadsheets, programs, word processing documents, and virtually any file to be transmitted instantly.

California Connections lists nearly 1500 job openings in the Golden State, in 39 categories from accounting to utilities.

The next Portfolio Contest, awarding $1000 cash to the investor who realizes the highest gain in a two month period from a make believe portfolio of $100,000, runs from June 1 to July 31.

The Source, 703-734-7500 (see address list, page 14).

Circle #285 on Reader Service Card

VIRUS RX

Anti-Virus ($39.95) is a collection of virus protection programs. A visual bootblock displays the *Anti-Virus* logo on the screen every time your computer is turned on or warm booted – if a virus is present when the computer is started, the logo will not appear. Another utility included on the disk, vCheck, resides in the Amiga startup sequence and monitors disks placed in the computer for the presence of a virus.



PrintManager lets up to four Amigas share a single printer.

DevWare, 619-673-0759 (see address list, page 14).

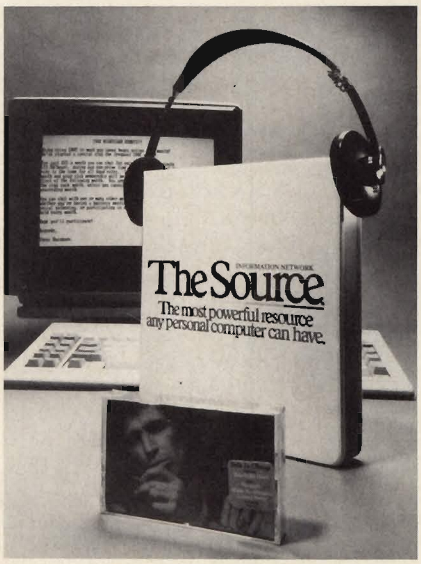
Circle #284 on Reader Service Card

SONG DISKS

Sonix SoundTrax Volumes One and Two ($19.95), two full disks of interactive songs for use with *Aegis Sonix,* allow even the amateur musician to participate flawlessly. Each song has its keys set on the Amiga keyboard, making an off-key note almost impossible.

Aegis, 213-392-9972 (see address list, page 14).

Circle #270 on Reader Service Card



Talk is Cheap comes free when you join The Source's CHAT NightClub.

Unless otherwise specified, software and hardware mentioned in *Scuttlebutt* is to the best of our knowledge compatible with all 512K Amiga machines.

For further information, we suggest that you contact the manufacturers directly. Refer to the address list on the following page; or save time and money by using the reader service card bound between pages 50 and 51.

2 MEGS FOR 2000

Occupying a single expansion slot, the Megaboard 2000 ($599.95) gives the Amiga 2000 two megabytes of Fast RAM. The 256K x 1 dynamic RAM chips provide "no-wait state" performance. Included are built-in hardware refresh, full auto-configuration, and compatibility with software built into

Workbench 1.2 and above. The board can also be purchased unpopulated, or with only 1 meg of RAM installed. Designed by ASDG.

Progressive Peripherals & Software, Inc., 303-825-4144 (see address list, this page).

Circle #268 on Reader Service Card

RAM DOWN

Progressive has lowered the price of the ProRAM 2000 8 meg Fast RAM expansion board from $879.95 to $799.95. (Hagglers please note—in addition to this 9% retail price cut, dealer cost has been reduced by 18%.)

Progressive Peripherals & Software, Inc., 303-825-4144 (see address list, this page).

Circle #269 on Reader Service Card

MUSIC ENTRY SYSTEM

The Amiga's MIDI capabilities have heretofore meant little to users unable to play a keyboard or other MIDI-compatible instrument. But with Impulse's new *Harmony* program, composers and would-be composers can generate complete musical scores by using only the human voice.

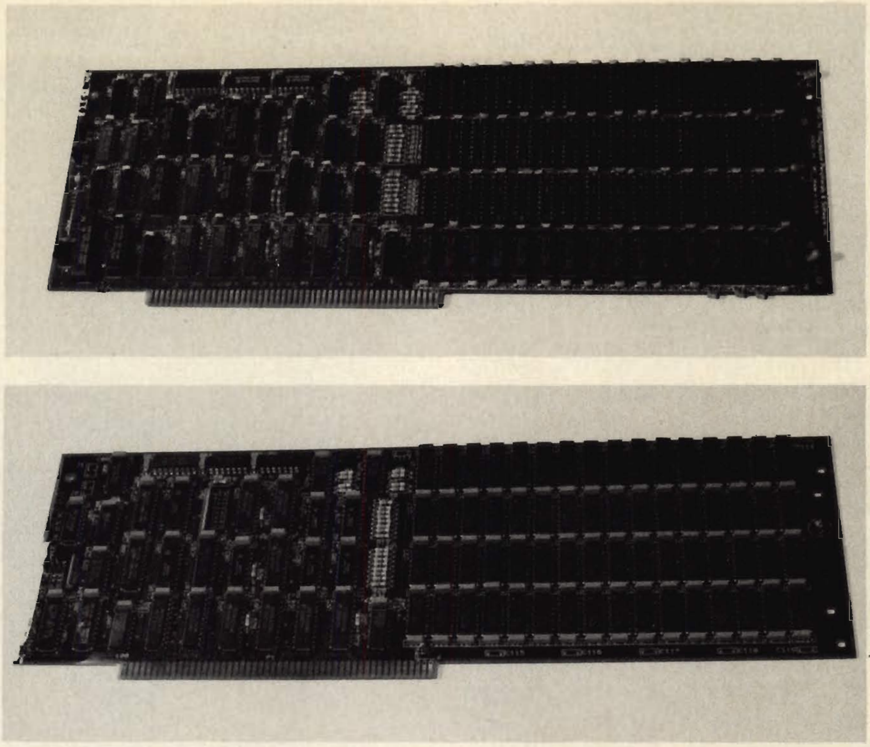
A method of operation called Frequency Tonal Recognition, devised by Impulse, allows the Amiga to translate into musical note events any sounds that are sung, hummed, or produced by other means. These events consist of both duration of note and the position the note would occupy on the musical staff. Notes are recorded on the staff in visual format so the user can monitor the composition. Four different tracks of information can be layed down, creating a complete score.

Harmony reads SMUS files, in case you desire to lay down a track on top of any other musical scores. Full editing of the score is possible with the Harmony Music system, allowing the user complete control over the use and feel of the composition.

The product is scheduled for release on March 15.

Impulse Inc., 612-566-0221 (see address list, this page).

Circle #297 on Reader Service Card



This is not *the same picture twice—though you'll have to look close to distinguish Progressive's ProRAM 2000 (top) from Megaboard 2000 (bottom).*

Companies Mentioned in Scuttlebutt

Aegis
2115 Pico Blvd.
Santa Monica, CA 90405
Phone: 213-392-9972

Apache Technologies
5341 Derry Ave., Suite C
Agoura Hills, CA 91301
Phone: 818-991-2244

Applied Visions
One Kendall Square
Cambridge, MA 02139
Phone: 617-494-5417

Broderbund
17 Paul Drive
San Rafael, CA 94903
Phone: 415-492-3200

Camerica Ltd.
230 Fifth Ave.
New York, NY 10001
Phone: 212-683-7810

Communications Specialties
89A Cabot Court
Hauppauge, NY 11788
Phone: 516-273-0404

CompuServe
5000 Arlington Centre Blvd.
P.O. Box 20212
Columbus, OH 43220
Phone: 614-457-8600

DevWare, Inc.
10474 Rancho Carmel Dr.
San Diego, CA 92128
Phone: 619-673-0759

Express-Way Software
P.O. Box 10290
Columbia, MO 65205-4005
Phone: 314-474-2984

Impulse Inc.
6870 Shingle Creek Parkway #122
Minneapolis, MN 55430
Phone: 800-328-0184 or 612-566-0221

Infocom, Inc.
125 CambridgePark Drive
Cambridge, MA 02140
Phone: 617-492-6000

Inkwell Systems
1050-R Pioneer Way
El Cajon, CA 92020
Phone: 619-440-8048

Magnetic Images Co.
P.O. Box 17422
Phoenix, AZ 85011
Phone: 602-265-7849

Memorex
2400 Condensa Street
Santa Clara, CA 95051-0996
Phone: 408-957-9556

MicroIllusions
17408 Chatsworth St.
Granada Hills, CA 91344
Phone: 818-360-3715

Oxxi, Inc.
P.O. Box 90309
Long Beach, CA 90809
Phone: 213-427-1227

Phoenix Electronics, Inc.
P.O. Box 156
Clay Center, KS 67432
Phone: 913-632-2159

PrintManager, Inc.
108 Water St.
Watertown, MA 02172
Phone: 617-924-3952

Progressive Peripherals & Software
464 Kalamath Street
Denver, CO 80204
Phone: 303-825-4144

Rainbird
3885 Bohannon Drive
Menlo Park, CA 94025
Phone: 415-322-0412

Spectrum HoloByte
2061 Challenger Drive
Alameda, CA 94501
Phone: 415-522-3584

Taito Software, Inc.
267 W. Esplanade, Ste. 206
North Vancouver, BC
Canada V7M 1A5
Phone: 604-984-3344

The Source
1616 Anderson Road
McLean, VA 22102
Phone: 703-734-7500

Titus Software Corp.
20432 Corisco Street
Chatsworth, CA 91311
Phone: 818-709-6537

EYE ON CLI

Understanding and Using the Command Line Interface

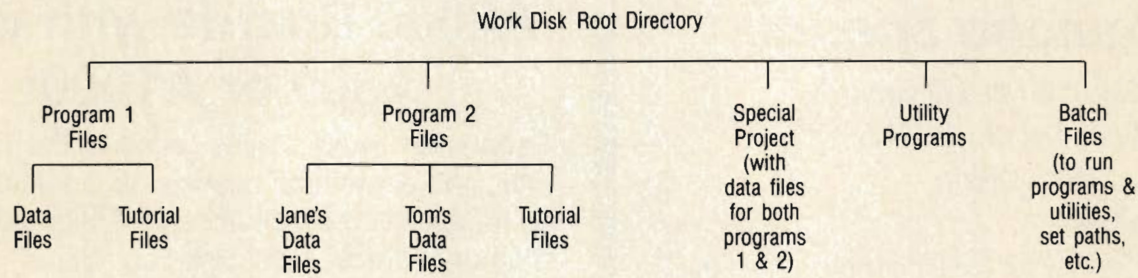
NAVIGATING YOUR DISK, PART 2

By Richard Herring

Last month we began a discussion of directory trees by examining the CD and MAKEDIR commands. Before we continue that discussion this month, let's review the directory tree we were working with. Our hypothetical structure was as shown in the chart directly below.

As I noted, this is probably too grand a tree for a floppy, and it is far too simple for a hard disk. Whichever type of drive you use, understanding directory trees is essential.

The actual directory tree we built last month looked like the chart at the bottom of the page.



Whatever your directory tree looks like, realize that all files are in a directory. Even if you don't create any directories, your files will still be in the root directory. Once you do have several directories, AmigaDOS does not mind duplicate file or directory names on the disk as long as the matching names are not in the same parent directory. When you want to refer to any file, you can specify its full path. The path to the file would include the disk name (or drive), directory, subdirectories, and filename. On our example disk, a full path might be "WorkDisk:Prog2/Tom/(file)".

CD and MAKEDIR were just enough to get us started. Many other AmigaDOS commands operate on directories and make using directory trees simple and powerful. This month, we'll look at the DELETE, DIR, LIST, PROMPT, PROTECT, and RENAME commands. I will point out some differences between 1.2 and 1.3 because, of the commands discussed here, only CD, MAKEDIR, and RENAME have not been enhanced.

DELETE

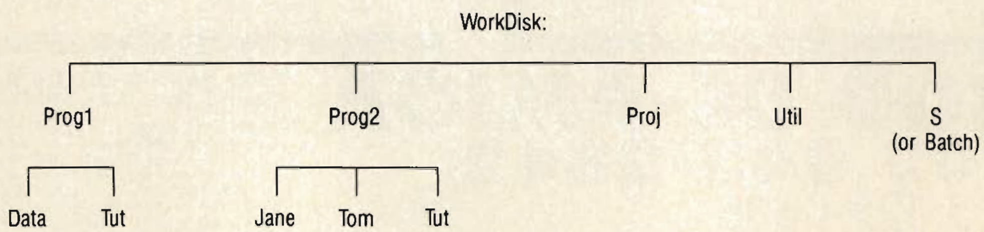
DELETE helps both to free up space on our disks and to get rid of names that we don't want to see any more. Tom (the user) decides to quit using Program 2. To delete the "Tom" subdirectory, we can NOT simply type "DELETE Tom". AmigaDOS will respond "Not Deleted – directory not empty" (assuming we're in the "Prog2" directory—otherwise, DOS won't be able to see "Tom" unless we specify a full path.)

DOS is helping us here. It prevents the deletion of a directory that contains files. It forces us to be specific that we really want to delete all the files in that subdirectory. It saves us from mistakenly thinking we're just deleting a file called "Tom" when we're really wiping out a whole directory of files.

There are two ways around this safeguard. First, we can "CD Tom" into the directory, then "DELETE #?" to zap all the files in it. Next "CD /" back to the "Prog2" directory. Finally, try "DELETE Tom" again and DOS will do so. "Tom" now contains no files to protect.

The second way is faster and more dangerous. Type "DELETE Tom ALL". DOS interprets the optional "ALL" switch as meaning that you want to delete the subdirectory and everything in it.

This is especially dangerous when you have deeply nested subdirectories. From the root directory of our WorkDisk, the command "DELETE Prog2 ALL" will delete the "Prog2" directory and all the Program 2 files in it. It will ALSO delete the "Jane", "Tom", and "Tut" subdirectories,



AVAILABLE AT LAST!



The *Ahoy!'s AmigaUser* Program Disk, Volume I contains all the type-in programs from the May 1988 through January 1989 issues of *Ahoy!'s AmigaUser*, including the following:

- *AmigaUserTerm*—Amiga BASIC terminal software with many of the features of commercial programs
- *Matrix Pattern*—an area fill pattern creator that allows you to output to data statements
- *ABM*—defend three missile bases and six cities against a full-scale alien attack
- *Mailbox*—a speedy name and address management and label printing system
- *Shade Select*—a color control and comparison program that lets you display any 10 of the Amiga's 4096 colors onscreen at one time

Plus routines from *Amiga Toolbox*, and a sampling of the best of Amiga public domain software, including *Amoeba Invaders* (arcade action); *Dmouse* (mouse pointer animator); *DropShadow V. 2.0* (window enhancer); *Purty* (printer utility); and *ViewBoot* and *VirusX V. 2.0* (virus prevention, detection, and cure programs).

...and other surprises!

ORDER TODAY!

Send coupon or facsimile to:

Ahoy!'s AmigaUser Program Disk
Ion International Inc.
45 West 34th Street—Suite 500
New York, NY 10001

☐ Send me ____ copies of the *Ahoy!'s AmigaUser* Program Disk, Volume I at $7.95 each (outside US, $8.95 each).

☐ Payment enclosed: $______. ☐ Please bill my credit card.
☐ MasterCard ☐ VISA Card #__________________ Exp. Date______

Signature______________________________

Name______________________________

Address ______________________________

City__________________ State________ Zip__________

Your disk will be sent immediately upon receipt of your order; however, due to postal delays, please allow at least two weeks for delivery.

and ALL their files. If they contained any sub-subdirectories, they'd buy the farm too. And so on to the ultimate depth of that branch of the tree.

Your Amiga's screen will display a message as each file or directory is deleted. The only thing that may save you if you realize you're zapping files that deserve to live is a fast Control-C to interrupt the DELETE command. As DOS deletes each file and directory, it will inform you with a "WorkDisk:Prog2/(file) Deleted" message. Once DOS has started to delete a file, Control-C won't save it, but will save the files DELETE hasn't gotten to yet.

If you want true destruction, there's one more option for DELETE. Try "DELETE Prog 2 ALL Q". "Q" for quiet, no delete messages, no warning, a real bolt of lightning to kill this branch of the tree.

Normally, a subdirectory to be DELETEd must be in the current (logged) directory. But like other DOS commands, DELETE understands path names. From the "Jane" subdirectory, you can delete "Util" with the command "DELETE :Util ALL" or "DELETE //Util ALL".

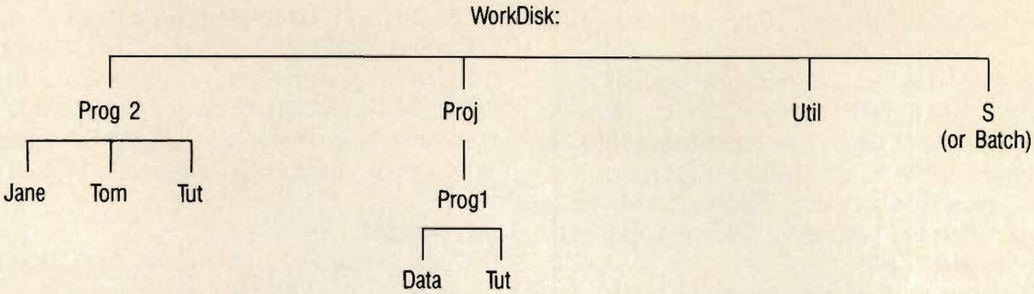
One last word on DELETE. If you have included a directory in DOS's search path, with the PATH command, that directory cannot be deleted even if it is empty. DOS will respond "(directory) Not Deleted – object in use". You will have to change the path so it no longer includes your subdirectory, then type your DELETE command again. But "DELETE (directory) ALL" will still wipe out the entire contents of that directory before DOS realizes it can't delete the directory itself.

RENAME

RENAME is an incredibly powerful tool for manipulating directory trees. With RENAME, you can move a file or a whole subdirectory into another directory. Think of RENAME as the equivalent of using COPY to replicate the file or subdirectory in a new location and then using DELETE to kill the original.

To move a file from "Jane" to "Tom" you could type, from the root directory, "COPY Prog2/Jane/(file) TO Prog2/Tom". (You can omit the TO filename if you want it to be the same as the original.) You'd then have to type "DELETE Prog2/Jane/(file)". A much quicker option is to use the single command "RENAME Prog2/Jane/(file) TO Prog2/Tom/(file)". (With RENAME you must specify the TO filename even if it is unchanged.) Although we didn't change the name of the file, RENAME still requires us to type it on the TO side. (Note that RENAME's not too picky about TO. You can substitute AS for TO, leave TO out entirely, or even put TO in front of both filenames.)

Even more powerful, suppose you were using Program 1 for nothing except the Special Project. You could make "Progl" a subdirectory of "Proj" by typing "RENAME Progl TO Proj/Progl". Notice that this changes the path not only of "Progl" but of everything it contains – program files and subdirectories. Our tree would look like this:



Moving a file or directory like this is technically described as AmigaDOS changing the file's or directory's position in the filing system hierarchy. This is much faster than the COPY/DELETE alternative because DOS doesn't copy the whole file or directory. It just changes where it's "filed." Of course this means that you can't RENAME a directory from one disk to another.

Also, using RENAME like this cannot create a subdirectory. If, for instance, the "Proj" directory had not existed, our previous example would not have worked. RENAME could not create the "Proj" directory. It could move "Progl" to a different branch of the tree, but it couldn't create the branch.

RENAME has another advantage over the COPY/DELETE combination. RENAME does not change the file's date of creation and it does not wipe out any filenote associated with the file like the COPY command will. AmigaDOS 1.3 has improved this situation by adding options to the COPY command. The DATE keyword prevents COPY from updating the file's date, the COM keyword allows COPY to duplicate a filename, and CLONE does both.

(One note on COPY. The command "COPY TO :Proj", issued from the root directory of our WorkDisk, will COPY all the files from the root to the "Proj" subdirectory. No source directory is specified, so DOS assumes the current directory is the source.)

RENAME has a couple of limitations relevant to this month's discussion. First, you can't rename a subdirectory while you are in it. Second, you can't rename a subdirectory to the same name as a file in the parent directory. In other words, the "Prog2" directory cannot contain both a subdirectory named "Tut" and a file named "Tut".

DIR & LIST

We looked in depth at DIR and LIST in the very first *Eye on CLI* (May 1988), but let's quickly review those features relevant to navigating directories. "DIR OPT D" will give only the subdirectories in the current directory, omitting any mention of files. "DIR OPT A" will give all directories and the files and subdirectories they contain. "DIR OPT I" kicks you into interactive mode where you can enter

a subdirectory and even delete empty subdirectories.

Type a full path, like "DIR df0:Prog2/Tut", and DIR will dutifully follow it to list only the files in that sub-subdirectory. (This does not change the directory DOS sees as current, however. Type "CD" and you'll see that you are still in the directory and drive from which you issued the DIR command.) "DIR :" will give the files and subdirectories contained in the root directory, no matter how far down in the directory structure you are. And "DIR /" will give the contents of the parent directory of the subdirectory that you're in.

LIST by itself will display the directories and files in the current directory. It will end its info with a count of the number of files, number of directories, and number of blocks used. The number of blocks used refers to the space used by files in the current directory only. This is a handy gauge for deciding whether you have room to copy a particular directory onto another disk.

(It is also confusing to some users because LIST displays the size of each file in bytes—a number much larger than the blocks used. Under 1.3, we can force LIST to display the size of files, as well as the total space used, in blocks. Just use the optional keyword BLOCK at the end of your LIST command.)

Under 1.3, LIST has an optional switch DIRS that, as you might expect, lists directories only. LIST's summary will omit the number of files and will show the number of blocks used by the subdirectories, but not the files, in the current directory. LIST accepts full paths. From the root, you can "LIST Prog2/Tom" to see that subdirectory's files without CDing into the subdirectory first. If "Tom" has no files, LIST will respond "Directory "Tom" is empty".

Note that if a directory name matches one of LIST's keywords—like P to match filenames to patterns—the LIST command won't work. If there's a :P subdirectory in the current directory, "LIST P" will not list the files in the :P subdirectory. Instead, LIST will respond "Args no good for key", and display the argument template for LIST. LIST parses its command line before it looks at the disk's directories so it sees the "P", assumes it is an optional keyword, notes that you didn't give a pattern to match, and foils your intent.

This is a good reason not to name directories with any of LIST's options, including SINCE, UPTO, P, PAT, TO, KEYS, DATES, NODATES, QUICK (under 1.2 and 1.3); S (under 1.2); and BLOCK, LFORMAT, NOHEAD, SUB, FILES, or DIRS (under 1.3). Most of those aren't great directory names, but you may want to avoid them if you use the LIST command a lot.

How can we LIST the files in the :P directory without CDing into it? Simply include the path to the directory. Typing "LIST df0:P" from the root will stop LIST from thinking "P" is an option rather than a directory.

PROTECT

DOS's PROTECT command can prevent a directory from being deleted. A simple "PROTECT Prog2/Tom FLAGS rwe" will set the delete flag for the "Tom" subdirectory under AmigaDOS 1.2. (See February's *Eye on CLI* for more on 1.2's PROTECT command.) Under 1.3, you have the alternative to accomplish the same thing with "PROTECT Prog2/Tom -d" which sets (-) the delete status flag for "Tom".

Now if you try to "DELETE Tom" even with the "ALL" option, DOS will respond "WorkDisk:Prog2/Tom Not Deleted – file is protected from deletion". But it will do so only after zapping every file in the subdirectory.

Although protecting "Tom" doesn't directly protect the parent directory "Prog2", it has an effect. If you try to "DELETE Prog 2 ALL," the DELETE command will fail when it hits the protected Tom subdirectory. Since "Tom" cannot be deleted, neither can "Prog2". Also, any files or directories DELETE hasn't gotten to yet will be saved from deletion when DELETE hits the "Tom" subdirectory.

Likewise, you can protect an individual file from being deleted. If DOS can't delete the file, the directory the file is in can't be emptied, so DOS can't delete the directory either (even though the directory itself is not protected).

PROMPT

Under AmigaDOS 1.2, we wouldn't have had anything to say about the PROMPT command in this discussion of handling directory trees. However, 1.3 has added the essential feature that allows PROMPT not only to display stupid phrases (try "PROMPT Huh?" or "PROMPT "WaddaUWant?") but also to tell you what directory you're current in. The command "PROMPT %S>" should definitely be a line in your Startup-Sequence under 1.3. Then when you type "CD Prog2/Tom," DOS will respond with the prompt "WorkDisk:Prog2/Tom>."

Setting up a directory tree is a bit like programming. Some people like to create only the subdirectories they need right now and add more as the urge strikes. Other people like to define a complete tree, making their best guess as to future needs.

The first approach (which is like a bottom-up programming style) can result in filling a floppy up with too many different projects and not leaving enough room to complete any one or to maintain backup files. For most work situations, the second approach is preferable.

It will result in using more disks, most of which will have lots of empty space. But you will save the cost of the disks several times over in the time you save by not having to search for files—assuming of course that you label your disks and keep them organized in some sort of disk holder.

(Unlike 5¼" floppies, which are a bit more susceptible to static and to wounds of the fold/spindle/mutilate or puncture variety, 3½" disks can be stored in almost any kind of container. Roll-top teak boxes are fine, as are old shoe boxes. For that matter, even a retired toaster oven, with its glass door and retracting tray, will do—though I do suggest cutting off the plug lest it get inadvertently fired up.)

AmigaDOS is designed with your needs in mind. It assumes you will have lots of projects and lots of files to keep straight. By using directory trees and the special features of these AmigaDOS commands, you can make your life much easier.

We still have one command—PATH—to go in our discussion of navigating directory trees. Since it warrants nearly a full column to itself, we'll come back to it in two months.

Next month, we will look at a number of problems and how different readers have solved them. Remember, you can earn a free PD disk by sending a CLI-related hint to me at P.O. Box 1544, Tallahassee, FL 32302. □

MS-DOS MEETS AMIGADOS

Part V: Software Survey Continued

By Ted Salamone

More suggested programs for Bridgeboard-equipped A2000 owners.

This month we continue our list of MS-DOS software recommendations for Bridgeboard users.

Starting us out is *PC Quintet* from Timeworks. It combines word processing, a spell checker, an outliner, a spreadsheet, a relational database, graphics, and communications modules.

Quintet is multiwindowing *and* multitasking. You can work on more than one file or in more than one application at a time; likewise, you can print in background mode while working on the next task.

This pull-down menu, unprotected software does not use a mouse. Its power is tapped via a comprehensive manual which also features a Quick Start Mini-manual (for impatient computerists).

The above average word processor includes a 60,000 word thesaurus and a 90,000 word spell checker. Personalized dictionaries are possible. The outliner allows you to sketch concepts and ideas for later enhancement.

Spreadsheet mavens will like the ability to automatically print large files lengthwise, thanks to the *Sideways* routine. *Lotus 1-2-3* files can be imported or exported; over three dozen mathematical, logical, and statistical operators are supported. A table lookup capability is also included.

Graphics may be created from a spreadsheet, displayed onscreen, sent to a printer, or sent to a Hewlett-Packard plotter for exceptionally fine output. Bar, pie, line, and scatter charts are supported.

In the database module you can query (search for) information by 10 conditional parameters, including wild cards. ASCII files can be imported or exported. One weakness, however, is the inability of this relational database to accept *dBASE* files directly. Data calculation is handled, as is report and label output.

Finally, the telecommunications module supports the XON/OFF protocol, 75 to 9600 baud, autodial, autoreceive, ASCII, and XMODEM file transfer.

PC Quintet, on the whole, provides more functionality than *Eight-in-One*. However, it is more expensive, does not support a mouse, has a weaker telecommunication module, and supports fewer file formats.

UTILITIES

Several utilities were tested: *QuickMenu* from Crescent Software and *Word for Word* and *DS Squeeze* from Design Software (distributed by Electronic Arts).

QuickMenu reduces MS-DOS access time by adding a shell over the none-too-friendly A> prompt. Hard driver owners who frequently use a set number of programs will benefit the most.

QM behaves well in that it does not use RAM as its competitors do. Other shell programs reside entirely in RAM, taking room away from the main applications. *QuickMenu* creates batch files that are activated as each menu option is selected. That way, *QM* makes optimal use of a machine's RAM. (Considering the fact that the Bridgeboard only comes with 512K RAM, memory management is important. Optional RAM expansion cards can be added to the XT slots if you want 640K or better.)

Users of this unprotected utility have complete control over screen colors, interactive batch command creation, directory selection, menu creation, and password protection. A full screen editor provides the flexibility to design the menus as you like. Even more interestingly, existing batch files can be incorporated into *QuickMenu*. A must-have for those who can't stand working with command line interfaces like the A> prompt.

Word for Word converts word processing files from one format to another. It retains most formatting commands, such as tabs, margins, footnotes, etc. This is essential when passing information from WP to WP or from a WP to a desktop publishing program which cannot directly read a particular source file. A minimal amount of "cleanup" is required to make the file usable in its destination format.

The conversion routine is prompt-driven. Specify the name and location of the source file, select its format from the prompt list, specify the name and location of the destination file, select its format from the prompt list, and execute.

Multiple files can be tagged for automatic batch conversions. Any operation can be aborted with a simple keystroke; directories can be reviewed from within the program. Advanced users can do without the prompts, however, issuing commands from the MS-DOS prompt.

An exception report, an extremely useful listing of functions and formatting features not converted, can be produced automatically from the Options menu. This report can be reviewed onscreen or sent to a printer. Another way to combat unsupported features and functions is to activate the Exception Codes command on the Options menu. Either method may be used, but not both. The key is flexibility.

Supported formats include ASCII, Smart ASCII, COM-(munications), DisplayWrite (DCA/RFT), EBCDIC (primarily for IBM minis and above), IBM *Writing Assistant*, Microsoft *Word 3.0 to 4.0, MultiMate 3.3, MultiMate Advantage 3.6,* and *Advantage II.*

Other formats include *OfficeWriter 4.0/5.0, PFS: First Choice 1.0/2.0, PFS: Write version C, PFS: Professional Write 1.0, Volkswriter 3 1.0,* and *Deluxe 2.2.* Also *WordPerfect 3.0/4.1/4.2, WordStar 3.3/3.1/3.45/4.0,* and *XyWrite III.*

This utility can greatly increase the functionality behind the ability to write MS-DOS files to the Amiga side of a 2000.

DS Squeeze allows you to make the most of your precious (and expensive) hard disk storage capacity. It also reduces the cost of, and the time required for, telecommunication transmissions. This unprotected file compression utility shrinks files by up to 75%. In the process, it can encrypt files for security purposes. Using *DS Squeeze* is the only way these encrypted files can be read.

Normally compacted files, however, do not have to be decompressed to be used. With *DS's* execute command, .BAT, .COM, and .EXE files will execute without decompression. Now that's impressive.

DS Squeeze uses a *Lotus*-like interface, and allows users to create and attach comment files to compressed files, to write archive information to a special disk file, and to automatically erase the original versions of compressed files.

This is another must-have utility, considering the high cost of lengthy transmissions and hard drives.

CREATIVITY

Award Maker Plus from Baudville is a copy protected, menu-driven program used to create customized awards and certificates for sporting, academic, business, home, and school events. There is a hard drive installation utility.

Sample awards guide your efforts, fancy borders add spice to your creations, gold embossed press-on seals add stature and importance. A wide variety of black & white and color dot matrix printers are supported. Laser printers are included as well.

Optional accessories make for even fancier certificates and awards—parchment paper, envelopes, and additional embossed seals. This is one of those fun yet functional applications that remove some of the tedium from computing.

Broderbund's *Print Shop* fits the same category. This million-selling, copy protected application also offers a hard drive installation utility. Color and black and white dot matrix printers are supported.

20 background patterns, 16 border designs, 12 typefaces, onscreen preview, clip art (over 140 symbols), and additional clip art packages make custom letterheads, flyers, greeting cards, and banners a snap. The ability to reverse print for T-shirt iron-ons makes *Print Shop* a real crowd pleaser.

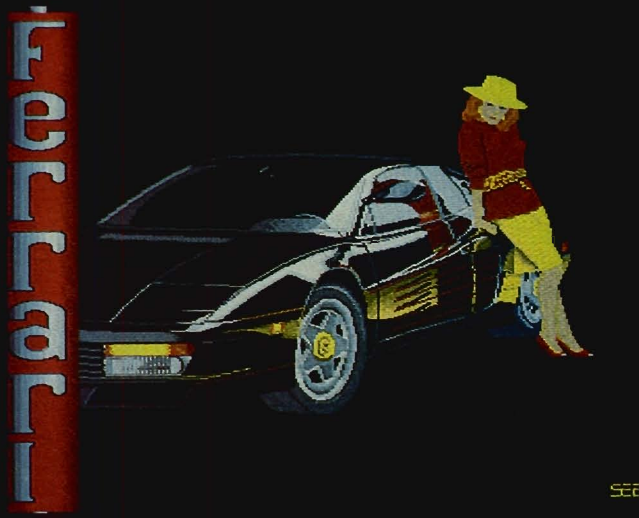
Colored paper and envelope samples are in every package; additional items can be mail ordered. A classic.

Creative Cuisine, an unprotected application from Artworx, contains over 300 recipes covering Hors d'Oeuvres, Soups, Main Courses, etc. There are also a number of suggested meals, including dinners, brunches, and buffet dinners. A Keep It Simple, Sweetheart category provides fast and easy recipes for anyone tired of microwaves and fast food restaurants.

Recipes may be reviewed onscreen, printed, or scaled

Continued on page 38

ART GALLERY





The *Art Gallery* offers the opportunity for fame and fortune to aspiring Commodore artists. Send your work on disk to *Art Gallery,* Ion International Inc., 45 West 34th Street—Suite 500, New York, NY 10001. Label each disk with the date of your submission, your name and address, the number of images on the disk, and the graphics or paint program used. Graphics produced on the Amiga are eligible for inclusion in *AmigaUser;* C-64, C-128, and Plus/4 images are eligible for inclusion in *Ahoy!* If your image is published, you will receive a free one-year subscription. Current subscribers will have their subscription extended by one year.

Note that the *Art Gallery* is not a contest. Published pictures are selected in an arbitrary and capricious fashion by the Art Director, based solely on their artistic merit.



Oops—Art Director Laura Palmeri misunderstood when she overheard the editors saying they wanted to look at some Amiga drivers this month. Just as well, though—there's not a single lemon in this batch of motorized masterpieces. Left: *King Cab* by Bruce Yarbor (Oklahoma City, OK), drawn on *DeluxePaint* (this month's only non-*DeluxePaint II* image). Top: *Testarosa* reflects the expensive tastes of Stephen Beckwith (Orlando, FL). Directly above and top, facing page: a bevy of Chevies by Vincent F. Morano, Jr. (Bloomington, NY)—*'56* and *'51* respectively. Right: an economically lopsided Dutch treat from M.O. Schriemer (Hoek, The Netherlands)—*Ferrari F40* and *Ford Escort XR31.*


'51 CHEVY

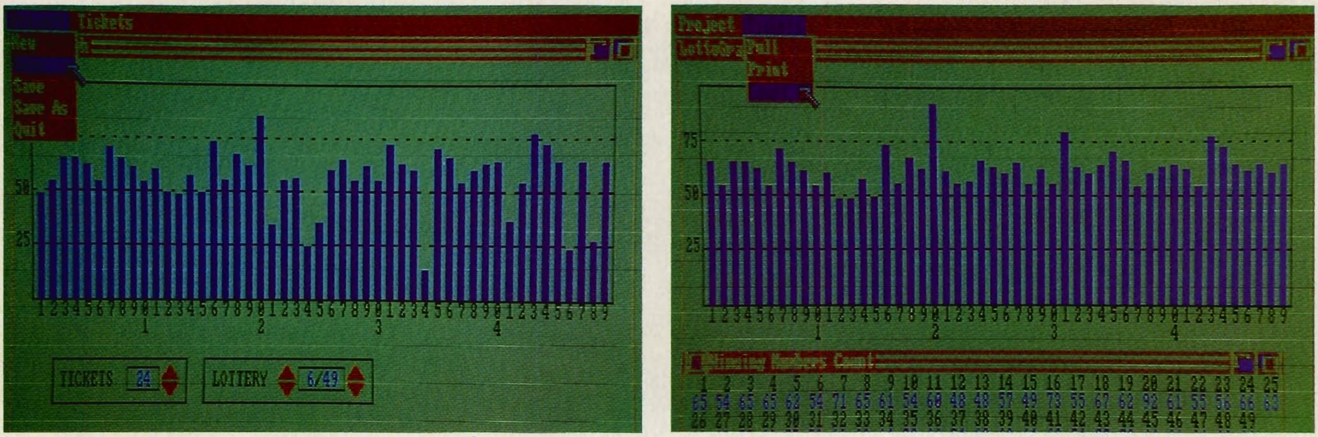



ARTWORX



A Customizable Lottery Picking Program

By Bob Spirko



Left: first you select number of tickets and type of lottery. Right: program displays winning numbers count.

```
SCREEN 1,640,200,2,2
WINDOW 1,"LottoGraph",(0,11)-(631,186),22,1
DEFINT b,i-z
pick=6:lotto=36 '6/36 lottery
initbar=60       'initial graph bar height (0-99)
ntickets=6       'no of tickets
max=36:min=4     'max and min no of tickets
x=24:y=11:nt=ntickets
DIM barshape(65),char(9),dash(4),charline(268)
DIM bar(50),bart(50),number(50),ticket$(max),month$(12)
FOR i=0 TO 3
  READ p1,p2,p3
  PALETTE i,p1/16,p2/16,p3/16
NEXT
FOR i=1 TO 3:READ lotto(i):NEXT
RANDOMIZE TIMER
MENU 1,0,1,"Project"
MENU 1,1,1,"New     "
MENU 1,2,1,"Open    "
MENU 1,3,1,"Save    "
MENU 1,4,1,"Save As"
MENU 1,5,1,"Quit    "
MENU 2,0,1,"Tickets"
```

Do you feel lucky? You'll need to be if you try to enter this program without first reading your Amiga BASIC manual!

After you do the necessary background work, we'll be glad to help you with any problems. Call 212-239-6089 (if busy call 212-239-0855), 8:30-4:30 EST.

Until I picked up a lottery newspaper, I'd never had much interest in lotteries. In the lottery paper, however, I noticed that graphs for lotteries, such as 6/49, showed that some numbers occurred more frequently than others. Intrigued with this—and having a normal level of greed—I decided to write a program in BASIC that would take advantage of this variation. I reasoned that I would have a better chance of picking a winning lottery ticket with a computer program based on frequently occurring numbers than on numbers based on my hat size, my dog's birthday, or other such criteria.

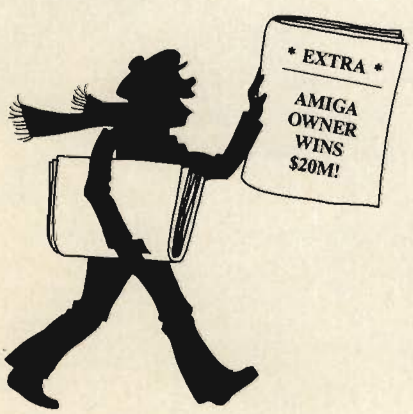
The program, I decided, would be easy to use. Instead of typing in the number of the occurrences of all the numbers on winning tickets, I would use the mouse to adjust a bar graph to match the graph in the lottery newspaper. Then, at a click of a mouse but-

ton, the computer would pull out a list of tickets based on the numbers that came up most often. Of course, the program would be careful to produce tickets that were all different. Being an optimist, I decided to call the program *Celebrate.*

Run *Celebrate* and you'll be greeted with a screen comprising a bar graph, menu bar, ticket control, and lottery control. The graph that you'll see is for 6/36 lotteries, but you can select another lottery from 28 to 50 with either 4, 5, or 6 numbers. To do this, change the numbers in the LOTTERY box below the graph by using the up and down arrows. You can change the first number (6) directly, but the lottery number involves an extra step. After you've clicked one of the arrows beside it, an OKAY box comes up. Continue clicking until you've selected your lottery, then click OKAY. The graph will be redrawn for the new lottery.

Now you're ready to change the bars in your graph. The bars are adjusted in much the same way as you use most Amiga slider controls: by clicking on the bar and sliding your mouse up or down while holding down the mouse button. When you adjust a bar, a number will appear above it. This number reflects any changes that you make in the bar's height so that you can set the bar height exactly. Bars can be adjus-






```
MENU 2,1,1,"Pull    "
MENU 2,2,1,"Print   "
MENU 2,3,1,"Count   "
MENU 3,0,0," "      'delete this line when compiling
MENU 4,0,0," "      'delete this line when compiling
ON ERROR GOTO ErrorCheck
'disable this line when debugging
ON MENU GOSUB MenuCheck
COLOR 3
LINE(0,0)-(3,0)
GET(0,0)-(3,0),dash
PUT(0,0),dash,XOR
FOR i=1 TO 50:bar(i)=initbar:NEXT
GOSUB SetupGraph:GOSUB GraphReset
GOSUB SetupBoxes:GOSUB SetupBars
FOR i=1 TO 12:READ month$(i):NEXT

Main:
WHILE MOUSE(0)=0:WEND
mx=MOUSE(1):my=MOUSE(2)
IF my>y AND mx>x AND mx<xx THEN
  IF MOUSE(0)<0 THEN
    IF my<yy AND POINT(mx,my)=2 THEN GOSUB AdjustBars
  ELSE
    IF my<yy AND POINT(mx,my)=0 THEN
      GOSUB AdjustBarsUpOne
     END IF
    IF my>138 AND POINT(mx,my)=1 THEN
      IF mx>344 THEN GOSUB ChangeLotto
      IF mx>274 THEN GOSUB ChangePick
      IF mx<200 THEN GOSUB ChangeTickets
     END IF
  END IF
END IF:GOTO Main

MenuCheck:
m0=MENU(0):m1=MENU(1)
IF m0=1 THEN
  IF m1=1 THEN
    FOR i=1 TO 50:bar(i)=initbar:NEXT
    ntickets=nt:GOSUB GraphReset
  END IF
  IF m1=4 THEN file$=""
  IF m1=5 THEN END
  ON m1 GOSUB SetupBars,GraphOpen,GraphSave,GraphSave
  ELSE
  ON m1 GOSUB PullTickets,PrintTickets,Count
END IF
RETURN

AdjustBars:
COLOR 2
n=INT((mx-x)/12)+1
xb=12*n+x-12
l=n*3/2+2
WHILE MOUSE(0)<0
  ty=MOUSE(2)
```

```
  IF ty<=y THEN ty=y
  IF ty>=yy THEN ty=yy
  LINE(xb,y)-(xb+7,ty),0,bf
  LINE(xb,ty)-(xb+7,yy),,bf
  LOCATE 1,1:PRINT USING "##";yy-ty
WEND
LOCATE 1,1:PRINT SPACE$(2)
bar(n)=yy-ty
LINE(xb,y)-(xb+7,ty),0,bf
LINE(xb,ty)-(xb+7,yy),,bf
RETURN

AdjustBarsUpOne:
COLOR 2
n=INT((mx-x)/12)+1
bar(n)=bar(n)+1
ty=yy-bar(n)
xb=12*n+x-12
IF my>ty OR mx<xb THEN bar(n)=bar(n)-1:RETURN
LINE(xb,ty)-(xb+7,ty)
RETURN

ErrorCheck:
IF ERR=53 OR ERR=49 THEN BEEP:RESUME GraphOpen
ERROR ERR

GraphClear:
FOR i=1 TO lotto:bar(i)=initbar:NEXT
FOR i=0 TO lotto-1
  xb=x+i*12
  LINE(xb,y)-(xb+7,yy),0,bf
NEXT
RETURN

GraphOpen:
l=lotto
FileWindow("Open")
IF file$="" THEN RETURN
OPEN file$ FOR INPUT AS 1
INPUT#1,pick,lotto,ntickets
FOR i=1 TO lotto:INPUT#1,bar(i):NEXT
CLOSE 1
CLS
GOSUB SetupGraph:GOSUB SetupBoxes
GOSUB SetupBars:GOSUB GraphReset
RETURN

GraphReset:
COLOR 2
LOCATE 19,17:PRINT USING"##";ntickets
LOCATE 19,39:PRINT USING"#";pick
LOCATE 19,41:PRINT USING"##";lotto
RETURN

GraphSave:
IF file$="" THEN FileWindow("Save")
IF file$="" THEN RETURN
```

ted from 0 to 99. You can also adjust a bar by clicking above it. This increments a bar by one—useful when you are updating your graph.

To check your graph, select **Count** under the **Tickets** menu. This brings up a window with the status of your bar graph. It gives you a list of all the ticket numbers and their bar height settings so you can be sure your graph is properly set up. After reviewing the numbers, you must click the mouse button on the main window; the **Count** window will then be shuffled behind the main window. If you wish to see the list later, use the front-to-back window gadgets to bring it back into view.

After setting up the graph, you may want to make one more adjustment before you start pulling out your tickets. If you wish to pull out more than six tickets, the default value, go to the ticket box under the graph and use the arrows there to adjust this number up or down. The program lets you select up to 36 tickets.

Now you're ready to list your lucky number combinations. Pull down the **Tickets** menu and select **Pull.** A window will appear and ticket numbers will begin to roll down the screen. Like the **Count** window, you must click the mouse button to send this window to the back before you can select your next

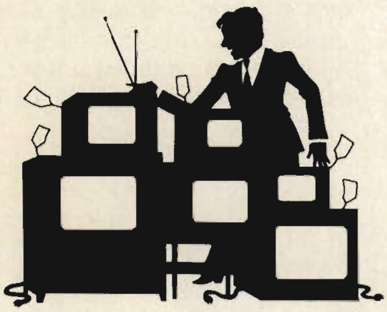


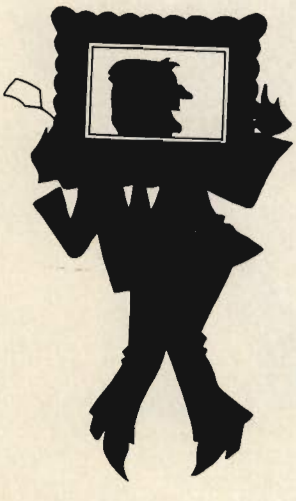
command. After pulling your tickets, you'll probably want a printout of them. Select **Print** on the **Tickets** menu and your list will be sent to the printer. Armed with your ticket list, you're now ready to mark your lottery cards.

Before you go blithely on your way to producing winning tickets, you may want to change the program's default values. If, for instance, you'd rather have a 6/30 or 6/48 graph appear first, just change the fourth line of the program. The next line determines the initial height of the graph's bars, and the following two lines set the defaults for the number of tickets you wish to pull.

When you use *Celebrate*, you'll find it's no slouch for speed. The screen is







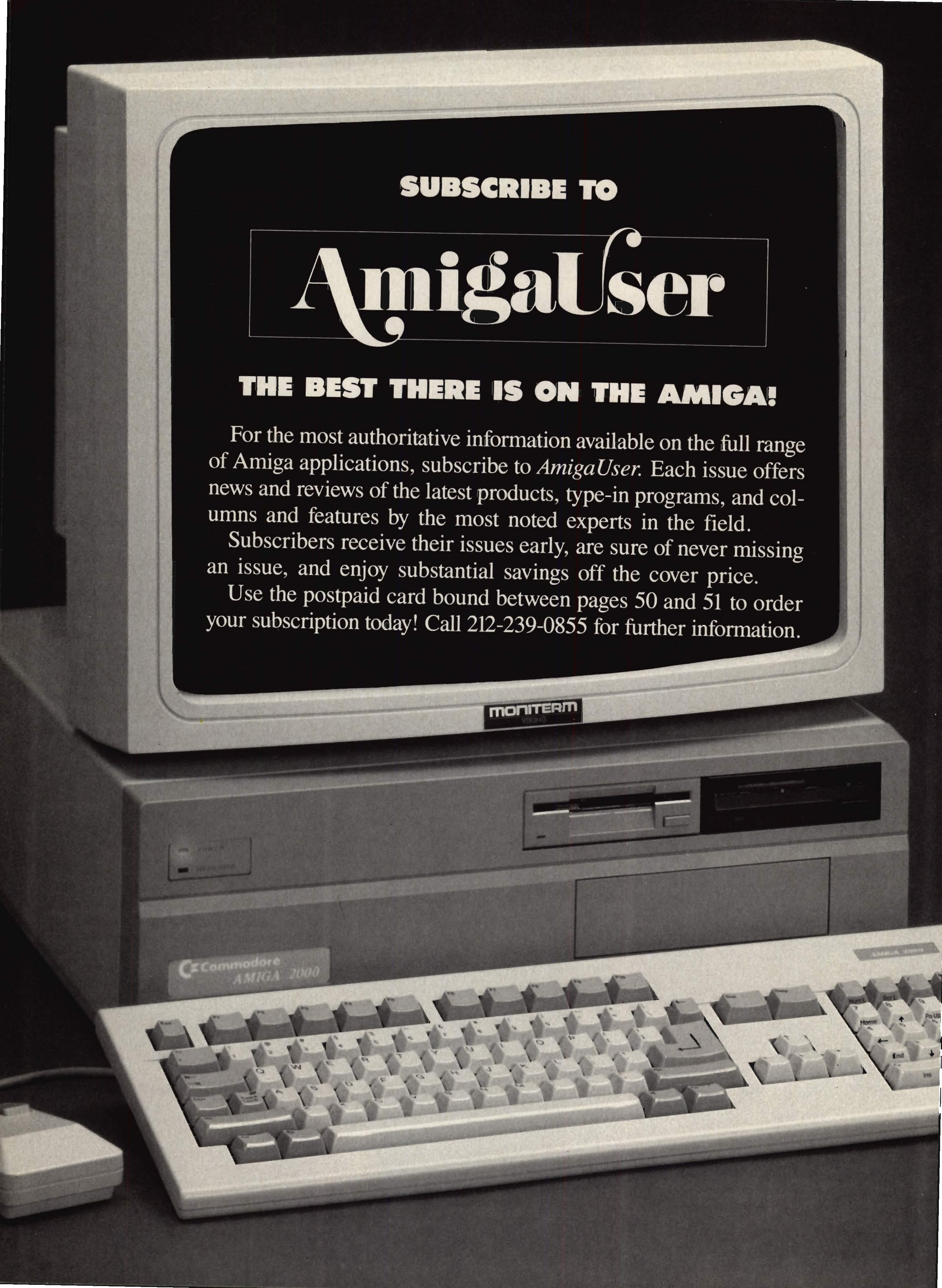
```
OPEN file$ FOR OUTPUT AS 1
PRINT#1,pick,lotto,ntickets
FOR i=1 TO lotto:PRINT#1,bar(i):NEXT
CLOSE 1
RETURN

ChangePick:
COLOR 2
IF my<148 THEN
  pick=pick+1+(pick=6)
ELSE
  pick=pick-1-(pick=4)
END IF
LOCATE 19,39:PRINT USING"#";pick
RETURN Main

ChangeLotto:
MENU OFF
LINE(386,138)-(442,158),3,b
LINE(387,138)-(441,158),3,b
COLOR 1:LOCATE 19,51:PRINT "OKAY"
notOK=-1:l=lotto
COLOR 2
GOSUB ChangeLotto2
Again:
WHILE MOUSE(0)<=0:WEND
mx=MOUSE(1):my=MOUSE(2)
IF mx>344 AND my>138 THEN
  IF mx<384 AND POINT(mx,my)=1 THEN
    GOSUB ChangeLotto2
  ELSEIF mx>386 AND mx<442 AND my<158 THEN
    notOK=0:LINE(386,138)-(442,158),0,bf
  END IF
END IF
IF notOK THEN Again
IF l<>lotto THEN
  LINE(x-5,y-1)-(xx+1,yy+17),0,bf
  FOR i=1 TO 50:bar(i)=initbar:NEXT
  GOSUB SetupGraph:GOSUB GraphReset:GOSUB SetupBars
END IF
MENU ON
RETURN Main

ChangeLotto2:
IF my<148 THEN
  lotto=lotto+1+(lotto=50)
ELSE
  lotto=lotto-1-(lotto=28)
END IF
LOCATE 19,41:PRINT USING"##";lotto
RETURN

ChangeTickets:
COLOR 2
IF my<148 THEN
  ntickets=ntickets+1+(ntickets=max)
ELSE
```


SUBSCRIBE TO
AmigaUser
THE BEST THERE IS ON THE AMIGA!
For the most authoritative information available on the full range of Amiga applications, subscribe to AmigaUser. Each issue offers news and reviews of the latest products, type-in programs, and columns and features by the most noted experts in the field.
Subscribers receive their issues early, are sure of never missing an issue, and enjoy substantial savings off the cover price.
Use the postpaid card bound between pages 50 and 51 to order your subscription today! Call 212-239-0855 for further information.
moniterm
Commodore
AMIGA 2000

```
   nticket s=ntickets-1-(ntickets=min)
END IF
LOCATE 19,17:PRINT USING"##";ntickets
RETURN Main

Count:
WINDOW 3,"Winning Numbers Count",(0,154)-(600,186),30,1
l=1:j=0
FOR i=1 TO lotto
   COLOR 3:LOCATE l,i*3-j-2:PRINT USING "###";i;
   COLOR 2:LOCATE l+1,i*3-j-2:PRINT USING "###";bar(i);
   IF i=25 THEN l=3:j=75
NEXT
WHILE MOUSE(0)=0:WEND
WINDOW 1
RETURN

PullTickets:
MENU OFF
ysize1=178-8*INT((ntickets-1)/4)
WINDOW 2,"TICKETS",(0,ysize1)-(617,186),31,1
COLOR 3:ntab=1:chance=99-INT(ntickets/6)
FOR i=1 TO 49:number(i)=i:bart(i)=bar(i):NEXT
FOR i=1 TO lotto-1:FOR j=i+1 TO lotto
   IF bart(i)<bart(j) THEN
      SWAP bart(i),bart(j)
      SWAP number(i),number(j)
   END IF
NEXT:NEXT
IF bart(1)-bart(16)<2 THEN
   PRINT "Too many equal-sized bars ";
   PRINT "(click mouse button to continue)
   WHILE MOUSE(0)=0:WEND
   WINDOW CLOSE 2:MENU ON:RETURN
END IF
q=100*bart(1)/chance
FOR i=1 TO ntickets
   TryAgain: k=1
   FOR j=1 TO pick:t(j)=0:NEXT
   ticket$(i)=""
   FOR j=1 TO pick
      WHILE t(j)=0
         t(j)=-number(k)*(RND(1)<bart(k)/q)
         k=k+1
      WEND
   NEXT
   FOR m=1 TO pick-1:FOR n=m+1 TO pick
      IF t(m)>t(n) THEN SWAP t(m),t(n)
   NEXT:NEXT
      FOR l=1 TO pick
      IF t(l)<10 THEN s$=" " ELSE s$=""
      ticket$(i)=ticket$(i)+s$+STR$(t(l))
   NEXT
      IF i>1 THEN
      m=0
      FOR l=1 TO i-1
         IF (ticket$(i)=ticket$(l)) THEN m=-1
```

redrawn quickly whenever a new lottery is chosen, and calculations are fast enough to list your tickets in a few seconds. But you can make *Celebrate* more fleet by compiling it with Absoft's *AC/BASIC* compiler. *Celebrate* is ready to be compiled as it stands; if you typed it in correctly you won't have to make any modifications (although you can delete the last two MENU commands for aesthetics). Just set option N in *AC/BASIC* to process run-time events. When compiled, *Celebrate* runs about four or five times faster.

This program won't guarantee you'll win a million, of course, but it should be fun to use. If you do win, let us know about it—after you *Celebrate!* □



















```
    NEXT
    IF m THEN TryAgain
  END IF
  PRINT TAB(ntab)ticket$(i);
  ntab=ntab+19
  IF ntab=77 AND i<>ntickets THEN ntab=1:PRINT
NEXT
WHILE WINDOW(0)=2:WEND:
WINDOW 1:MENU ON
RETURN

PrintTickets:
MENU OFF
d$=DATE$
LPRINT TAB(1);
FOR i=1 TO 73:LPRINT "-";:NEXT
LPRINT TAB(1)"Celebrate";
LPRINT USING " #";pick;:LPRINT "/";
LPRINT USING "##";lotto;
LPRINT TAB(62)month$(VAL(LEFT$(d$,2)));
LPRINT SPC(1)MID$(d$,4,2);
LPRINT ", 19"RIGHT$(d$,2)
FOR i=1 TO 73:LPRINT "-";:NEXT
LPRINT:LPRINT
ntab=1
FOR i=1 TO ntickets
  LPRINT TAB(ntab);
  LPRINT USING "##";i;
  LPRINT ")"ticket$(i);
  ntab=ntab+26:IF ntab=79 THEN ntab=1:LPRINT
NEXT
LPRINT:LPRINT
MENU ON
RETURN

SetupGraph:
MENU OFF
COLOR 3
yy=y+99:xx=x+12*lotto
LINE(x-5,y-1)-(xx+1,yy+1),,b
LINE(x-6,y-1)-(xx,yy+1),,b
LOCATE 5:PRINT "75"
LOCATE 8:PRINT "50"
LOCATE 11:PRINT "25"
LOCATE 15,4
FOR i=1 TO lotto
  PRINT USING "#";i MOD 10;
NEXT
x1=8*(3+lotto)-1:x2=xx
FOR i=1 TO lotto
  GET(x1,yy+2)-(x1+7,yy+9),char
  PUT(x1,yy+2),char,XOR
  PUT(x2,yy+2),char
  x1=x1-8:x2=x2-12
NEXT
FOR i=1 TO FIX(lotto/10)
  LOCATE 16,2+15*i:PRINT i
```

```
NEXT
GET(100,yy+10)-(xx-2,yy+17),charline
PUT(100,yy+10),charline,XOR
PUT(97,yy+10),charline
'dashed lines
FOR i=x-12 TO xx-1 STEP 12
  PUT(i+8,yy-75),dash,PSET
NEXT
GET(x-4,yy-75)-(xx-1,yy-75),charline
PUT(x-4,yy-50),charline,PSET
PUT(x-4,yy-25),charline,PSET
MENU ON
RETURN

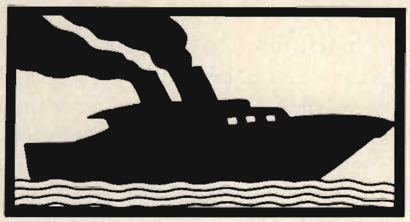
SetupBoxes:
COLOR 3
LINE(40,138)-(180,158),,b
LINE(41,138)-(181,158),,b
LINE(118,142)-(152,152),,b
LOCATE 19,7:PRINT "TICKETS"SPC(3);
Arrow 154
COLOR 3
LINE(198,138)-(370,158),,b
LINE(199,138)-(371,158),,b
LINE(295,142)-(342,152),,b
PRINT TAB(27)"LOTTERY"SPC(6);"/"
Arrow 274:Arrow 344
MENU ON
RETURN

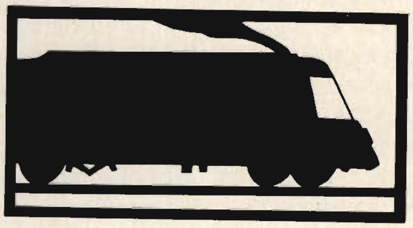
SetupBars:
FOR i=0 TO lotto-1
  xb=x+i*12
  LINE(xb,yy-bar(i+1))-(xb+7,yy),2,bf
  LINE(xb,yy-bar(i+1)-1)-(xb+7,y),0,bf
NEXT
RETURN

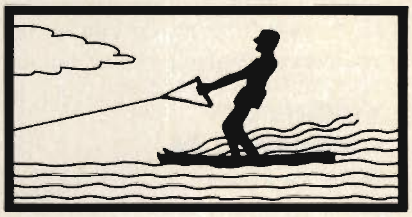
DATA 8,15,8,14,0,0,0,4,14,0,0,0,36,39,49
DATA JAN,FEB,MAR,APR,MAY,JUN,JUL,AUG,SEP,OCT,NOV,DEC

SUB Arrow (x) STATIC
COLOR 1
AREA(x,147):AREA STEP(9,-7)
AREA STEP(9,7):AREA STEP(-18,0)
AREAFILL
AREA(x,149):AREA STEP(9,7)
AREA STEP(9,-7):AREA STEP(-18,0)
AREAFILL
END SUB

SUB FileWindow (title$) STATIC
SHARED file$
WINDOW 2,"OPEN",(170,80)-(470,110),22,1
COLOR 3:PRINT:INPUT "Filename: ",file$
WINDOW CLOSE 2
END SUB
```









MS-DOS MEETS AMIGADOS

Continued from page 24

(ingredient quantities adjusted to match the desired number of people). An accumulated shopping list automatically compiles everything listed in selected recipes.

Table setting, seating arrangement, and entertainment tips are also provided. Other hints cover wine and cheese selection, provide measurement conversion charts, and define cooking terms. Your own recipes can be saved to disk for use during meal planning, etc.

Artworx also supplies *Linkword* language training programs. German and Spanish were reviewed here, but the series is also comprised of Portuguese, Russian, French, Greek, and Italian.

The goal in these programs is to have users learn basic grammar and a vocabulary of approximately 350 words. *Linkword* works differently from other language programs: It ties a foreign word to a similar sounding English word used in a sentence meant to create a link between the foreign word and its definition. For example, "The German for gentleman is Herren. Imagine a large herring dangling from the door of a gentleman's toilet." You're supposed to picture this image as a reinforcement to learning.

After several words are linked, the program has you translate words, and then sentences between both languages. Special characters in foreign languages not used in English are handled with special keystroke combinations.

Pronunciation is aided by a cassette tape; a glossary lists all words. Despite an unusual approach, the *Linkword* series works.

Maillist is a stand-alone, unprotected mailing list program which makes it easy to enter, manipulate, and output address information for small businesses.

Online Help is available; labels can be printed in 1, 2, or 3 up format. Fast and friendly, its only drawback is the inability to import existing database files of any type.

ForComment from Broderbund is an incredible productivity enhancer. Available in single author or network/workgroup versions, this program makes it easy for up to 16 people to review and comment on text prepared on a wide variety of MS-DOS word processors.

ForComment does the work; it automatically sorts and stores all comments away from, but tied to, the original document—and passages within.

This is ideal for anyone who needs documents reviewed or edited before printing. Password protection keeps comments confidential, online Help is available, and built-in word processors handle memos or short document creation.

Word processor file formats supported are *Bank Street Writer, BSW Plus, Microsoft Word 2.03/3.0/4.0, MultiMate 3.3/3.6/Advantage II, Volkswriter 3/Deluxe, WordPerfect 4.1/4.2, WordStar, Easy, Enable, Framework, Wordstar 3.3/4.0/2000/Professional, XYWrite II/II Plus/III,* and ASCII. Once you use this, you'll never go back.

Running Start from Spinnaker is a combination program like no other. It integrates a DOS manager and typing instructor with a word processor. Very useful for Amigaphiles who know little or nothing about MS-DOS, *RS* provides DOS access from within the program, concise DOS tutorials, and the ability to create application menus for users who do not want to deal with the A> prompt in MS-DOS.

The typing instructor runs drills, measures progress, makes reports, and guides you in speed and accuracy. 30 words per minute is the minimum stated goal.

The word processor contains all fundamental features, so it is quite capable of handling small business and home correspondence needs. Online, context-sensitive Help is available.

Running Start is not protected, uses pulldown menus, and does not require (or use) a mouse.

Also from Spinnaker, *The Resume Kit* is a comprehensive, full-featured application designed to help you put your best foot forward. This unprotected title automatically formats resumes, leaving you to fill in the blanks. The onscreen templates prompt you every step of the way.

Various types of resumes are supported: chronological, curriculum, vital target skill, and accomplishment. A WYSIWYG word processor with a 100,000 word spell checker is also included. As an optional service, users can send their resumes to Spinnaker for laser output.

Add the calendar-based appointment scheduling feature, onscreen Help and the guide to effective resume writing, and you have a powerhouse application with real earnings potential.

Type! is a dedicated typing tutor from Broderbund. This copy protected routine, with a hard drive install option, uses drills, measures performance, and reports on progress. *Type!* also makes use of Type!-Athon, a game approach to typing mastery. This option removes some of the drudgery from a pretty mundane task.

Type!, as a dedicated typing utility, is more advanced than the module in *Running Start*. For example, it will adjust to your skill level. This makes it ideal for novices or people just brushing up after time away from a keyboard. Advanced typing tests and objectives are also supported.

We've given you our top picks for quality, affordable MS-DOS software. Good luck exploring further on your own. □

Companies mentioned in this article:

Artworx
1844 Penfield Road
Penfield, NY 14526
Phone: 716-385-6120

Ashton-Tate
1000 Bridgeport Ave.
Shelton, CT 06484
Phone: 203-926-1112

Baudville
5380 52nd St. SE
Grand Rapids, MI 49508
Phone: 616-698-0888

Broderbund
17 Paul Drive
San Rafael, CA 94903-2101
Phone: 415-492-3100

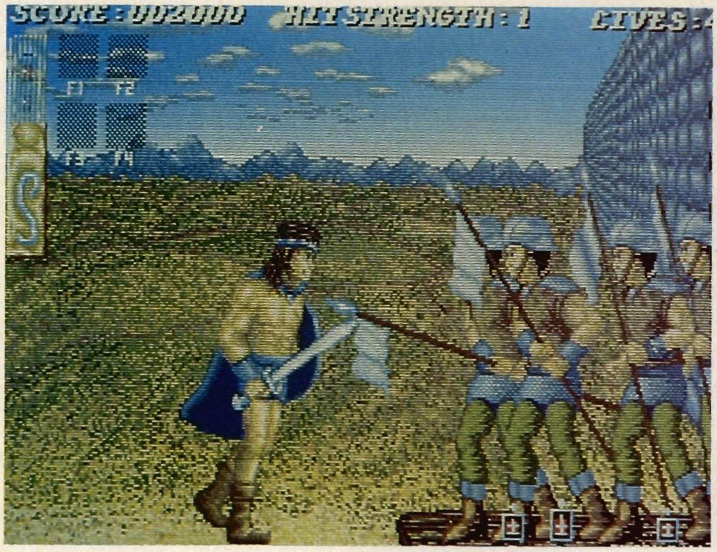
Crescent
11 Grandview Avenue
Stamford, CT 06905
Phone: 203-846-2500

Design
1275 W. Roosevelt Rd.
W. Chicago, IL 60185
Phone: 312-231-4540

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Phone: 415-571-7171

Spinnaker
One Kendall Square
Cambridge, MA 02139
Phone: 617-494-1200

Timeworks
444 Lake Cook Road
Deerfield, IL 60015
Phone: 312-948-9202



Sword of Sodan *is not software for the soft-hearted. Defeated foes do not die bloodlessly; slay the club-wielding giant, for example, and his severed head will roll to the floor.*

SWORD OF SODAN

Discovery Software
Amiga with 512K
Three Disks; $49.95

Wizards must be a very patient group. Otherwise, they'd protest the number of computer games which depict magic masters as maniacs, social outcasts, tyrants, and worse.

Sword of Sodan is another mage-basher, but even Merlin would have to love this enchanting arcade adventure. Few computer programs can match the lush and intricate animated graphics or brilliant music of *Sword of Sodan.* It probably could have been a hit coin-op, and might still find its way into the arcades if the Amiga edition's sales continue at the current record pace.

Castle Craggmoor, stronghold of the evil wizard Zoras, is the warrior's goal in Soren Gronbech's *Sword of Sodan.* The program divides the trip from the wilderness to a final confrontation with Zoras into horizontally scrolling, multiscreen segments. The fighter must battle enemies and leap over obstacles to complete a sequence and advance to the next stage of the arduous quest.

Before hand-to-hand combat begins, a special screen allows the computerist to pick either a male or female hero. The drawings of the two characters are dramatic and alluring, though the woman looks a lot less glamorous in the game than in this preview. This may disappoint those whose taste in swords-



women runs more to Red Sonja than Brunhilda.

The hero or heroine moves and fights in response to joystick commands. The character enters each sequence at the far left of the first screen and slowly advances to the right.

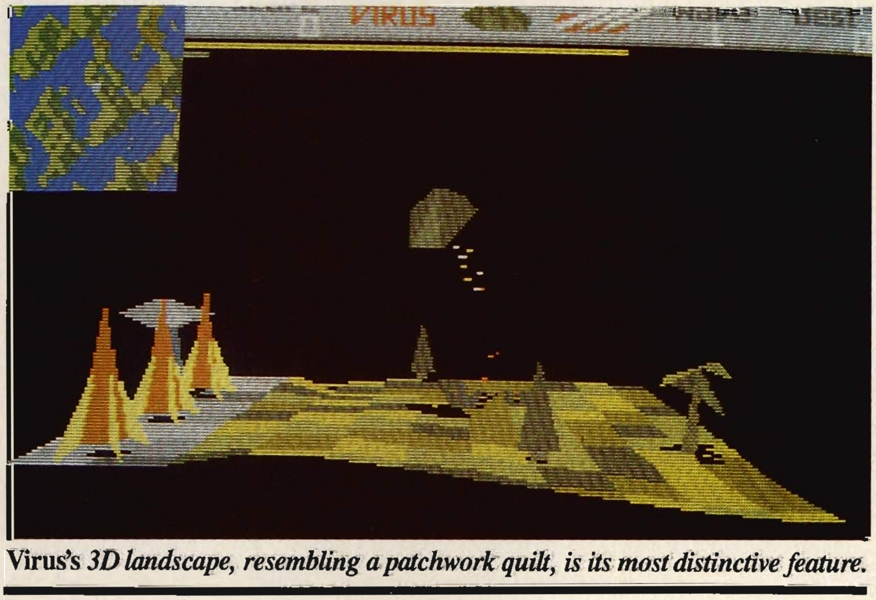
Although Torben Larsen's art creates an illusion of depth, this is strictly a side view presentation. Moving the foreground images faster than the background objects, as in the forest scene, convincingly shifts perspective as the warrior inches forward toward the next peril. The character cannot move between foreground and background, but the graphics mask this limitation.

Larsen's depiction of combat doesn't pull any punches, literally or figuratively. Foes don't die bloodlessly and then tastefully vanish into thin air. When the club-wielding giant's severed head rolls off his shoulders as he groans and slumps to the floor, players will know that *Sword of Sodan* is not software for the soft-hearted.

The only real quibble with the visuals is that the main character moves too far to the right, outracing the scroll. It is annoying to have the warrior half off the right edge of the display, battling an unseen adversary.

Atmospheric drawings bridge the gaps between interactive sequences. A full-screen illustration is followed by a narrative scroll which sets the scene for the next battle.

Each portion of the quest opens in the "pause" mode. The gamer must hit the joystick to set events in motion. This prevents the enemy warriors and monsters from attacking before the



Virus's *3D landscape, resembling a patchwork quilt, is its most distinctive feature.*

player is ready to meet the assault.

The hero can perform several different sword thrusts and cuts, though a greater variety of maneuvers would have made the adventure more enjoyable. Similarly, a way to use the shield with more effectiveness would have added a needed strategic element.

This simplicity does have the advantage of making *Sword of Sodan* remarkably accessible to a broad spectrum of Amiga owners. The program even presents an onscreen tutorial for those who don't want to bother with the slim rulebook. Learning to control the warrior is a snap, though it isn't easy to survive spike traps, zombies, and other menaces.

The character's path is also strewn with magic potions and devices. These can kill powerful enemies instantly, provide an impenetrable defense shield, enhance the character's strength, or increase the number of lives above the original five.

The adventurer automatically collects a magic object by touching it on the screen. There are four inventory slots, shown on the left side of the display. The function key which corresponds to each inventory box activates the device inside it.

These single-use items should be hoarded, like smart bombs in science fiction contests. An added complication is that all foes are not equally vulnerable to any one eldritch device.

The audio is every bit as impressive as the graphics. Julien Lefay's music fits the action perfectly, and pervasive sound effects endow the characters with substance and solidity. *Sword of Sodan* also uses synthetic speech better than any other Amiga game program.

Admittedly, the play-action isn't as remarkable as the audiovisual effects in *Sword of Sodan*. A product that good would quickly exhaust any critic's stock of superlatives. Perhaps the sequel will be able to scale those olympian heights.

Meanwhile, *Sword of Sodan* is great fun to play, even for those who normally aren't rabid gamers. It looks and sounds better than any program of this type, and it belongs in every serious gamer's collection.

Discovery Software, 163 Conduit St., Annapolis, MD 21401 (phone: 301-268-9877). *–Arnie Katz*

VIRUS

Rainbird
Amiga with 512K
Disk; $29.95

The media generally portrays pollution as a slow, silent killer. But what if aliens decided to use biochemical warfare against our still-green homeworld?

That is the premise of *Virus*, a highly unusual science fiction action game from England which Rainbird has now brought to the U.S. David Braben, coauthor of 1987's *Elite* (Rainbird), shows his versatility with this visually stunning multidirectional scroller.

The invaders from space are bombarding Earth with a red virus which pollutes the landscape and fosters mutations. It is up to the player, as captain of the hottest new hoverplane, to destroy the attackers and blunt their deadly threat.

The pyramidal hoverplane responds to orders entered through the mouse or keyboard. With the mouse, the left button ignites the engine, while the right one activates the laser cannon.

The "M" key launches one of the ship's limited stock of three homing missiles. The program awards an extra one for every 5000 points scored. This is a powerful weapon, but it is only effective at close range.

A system based on the thrust-fire principle determines the ship's flight. Firing the engine propels the ship in the opposite direction. The longer the engine works, the faster the hoverplane travels.

The hoverplane continues to move in a given direction, subject to the tug of gravity, until additional thrust is applied. As the computerist repeatedly fires the engine, steering becomes increasingly complex due to the multiple vectors. A proficient *Virus* player needs a delicate touch to avoid crashing the craft into the ground below.

The contoured, three-dimensional landscape, which looks like a multicolored patchwork quilt, is the most striking feature of *Virus*. The visuals are so distinctive that it would be impossible to confuse this omnidirectional scrolling shootout with any other computer game.

Virus also makes excellent use of sound effects. For example, the player hears the lapping of waves when the hoverplane flies over water. Another nice use of sound is the characteristic noises made by some alien ships. A "whoosh" means a bomber is getting close, while a twittering noise signals the imminent arrival of a Pest.

The core of the alient assault is its fleet of Seeders, which look like blue flying saucers. These spaceships can spray the red virus from the air, or they can land to infect the entire area around the site. Shooting one down is worth 100 points, while blasting it on the ground counts for only half as much.

The red and brown Drones harass the player's ship and try to disrupt its defense mission. Fortunately, it doesn't shoot with great accuracy and its engine cannot generate as much thrust as the hoverplane.

When an ordinary Drone shoots a tree at close range, it can mutate into a more powerful red and purple Drone. Their engines are still more puny than the Hoverplane's power plant, but their marksmanship is much better.

Bombers fly straight at high altitude and drop parachute bombs. They automatically detonate if the hovercraft flies too close, or they explode on impact with the ground.

Magenta and yellow Pests always head right for the Hoverplane. A fighter can shoot as often as the Hoverplane and is especially tough to destroy. It requires two hits with the laser cannon or one homing missile to dispatch these nasties. Attractors are a double threat. They shoot fireballs at the ground and drain the energy from the Hoverplane if it approaches too close.

A window in the upper left corner of the screen shows a strategic overview. Each type of enemy is symbolized by a colored blip.

After locating an alien on the strategic map, the computerist can pilot the Hoverplane toward it at top speed. When the foe appears on the main display, applying reverse thrust slows the ship to increase maneuverability during the actual dogfight.

Virus is one of the few action combat games which does not give an overwhelming advantage to the competitor with the quickest reflexes. It is a subtle and visually satisfying contest.

Rainbird, P.O. Box 2227, Menlo Park, CA 94026 (phone: 415-322-0412).

–Arnie Katz & Joyce Worley

WARLOCK
Three-Sixty
Amiga with 512K
Disk; $34.95

The gamer assumes the role of warlock in a world of swords and sorcery in this 20-level contest. The scepter-wielding mage must face a bevy of nasties who occupy this deathtrap for the unwary, as the gamer explores a medieval castle and environs.

Warlock uses a tried and true story. The Karna, a magical jewel that bestows infinite power on its possessor, has been stolen, plunging the entire medieval world into jeopardy. It's a dirty job, but someone's got to descend into the clammy world to recover the goodies.

The heroic gamer needs few qualifications for this quest, beyond a sure trigger finger. But it's an arcade-style action festival for quick shooters as they manipulate the little wizard through 20 levels, armed with a scepter that fires lightning bolts.

It's a rollicking romp filled with plagued rats, bats, dragons, henchmen, flying monkeys, and a fireball-tossing magician. A few magical items found along the way assist in the search.

The old-hat story is enlivened by graphics that turn a tired tale into an interesting trip. Half of the screen is dominated by a horizontally scrolling display which shows two parallel levels. The tiny though intricate characters are seen in two-thirds perspective as the warlock moves across the screen. There are frequent access points between the two levels, and the wizard is easily manipulated using joystick or keyboard control. He can walk left, right, jump up, and move freely between the levels, using staircases, elevator shafts, and other accesses.

Monsters are colorful and varied. Zombies, blobs, ghosts, ghouls, spiders, vampire bats, and more attack from every side. The warlock gains points for each one he destroys, but there's always more of the dungeon dreadfuls just ahead.

Above the playfield are current and high scores, and meters which measure the warlock's Vitality, Armor, and Power Points. Each time the warlock is hit by an enemy, his vitality level drops. When it reaches zero the little wiz wanes.

Killing an enemy increases the score, and sometimes gains a treasure. Each treasure adds Power, Armor, or Vitality points. There are three difficulty levels. The easiest setting starts a Lesser wizard with 5000 Vitality Points and 4000 Power Points. The most difficult setting starts the gamer with only 2000 Vitality Points and 2000 Power Points.

The charmingly drawn landscapes are varied and, sometimes, quite unusual. But the real show belongs to the spunky little mage dressed in cape and cowl, scurrying along, carrying his wand. The enemies are equally attractive in looks, if not demeanor. Flying cats, ghosts, and a wide assortment of unfriendlies, including fire-breathers and ghoulish gobblers, keep the warlock on his toes.

One extra element adds a delightful sense of unreality. A small window which flanks the scoreboard pictures the next monster that's approaching. This clairvoyant look at the future helps the wiz ready his defense.

Warlock was created by the French software consortium Infogrames from a design by O. Zimmer. The Amiga version was done by P. Degenne, and the team effort produced a game with offbeat and refreshing visuals, sparked by notable sound effects that add auditory chills to the gaming thrills.

The story isn't much, and the action isn't even that unusual. But it all adds up to a pleasant diversion that will keep the joysticker trying and trying again to defeat the incarnate evil at the earth's core, regain the magical jewel, and save the world.

Three-Sixty, 2105 S. Bascom Ave., Suite 290, Campbell, CA 95008 (phone: 408-879-9144). *—Joyce Worley*

HYBRIS
Discovery Software
Amiga with 512K
Disk; $39.95

In the entertainment software business, companies are always rising and falling. Established publishers falter when they lose the ability to respond to changes in the public's taste, and new outfits leap into the gaps left by the ones which fall by the wayside.

Discovery Software has only produced computer games for about a year, but president Rick Ross has led the East Coast publisher to its current position as a rising star of the software field.

Like many fledgling publishers, Discovery's products still exhibit a very pronounced house style. Greater diversity and new directions undoubtedly lie in the company's future, but today's Discovery titles are firmly rooted in the coin-op world.

Whether they are actual translations of play-for-pay machines like *Arkanoid*, or original designs such as *Sword of Sodan*, Discovery's games feature outstanding play-action, beautiful graphics, and rich musical scores. They unfailingly include such right-from-the-arcade frills as vanity boards and attract modes. If this company's games had coin slots, they'd be ready for the amusement centers with few or no modifications.

Hybris is a good example of the quality of Discovery's software. This multiphase science fiction action game looks and sounds great, and it plays every bit as well.

The coin-op connection isn't all good. There are differences between the amusement center and home environments which the design does not take into account. In trying to give it the authentic feel of an arcade machine, the design team has failed to fully consider the needs of computer gamers.

For one thing, *Hybris* may be too tough. The typical coin-op machine attempts to capture the customer's quarter in about 20 seconds. Computer games don't need to operate under this

Next month's game reviews:

- **TV Sports Football**
- **California Games**
- **Aussie Joker Poker**
- **Captain Blood**
- **Tower Toppler**
- **Space School Simulator**

WARLOCK



Warlock's ***plot is a tried and true one—a jewel that bestows infinite power on its possessor has been stolen, plunging the medieval world into peril. The gamer must recover the gem. The story is enlivened by graphics that turn a tired tale into an interesting trip.***

constraint, but *Hybris* does anyway.

Multiphase coin-ops often present enemies and obstacles in the same sequence. As the player memorizes the screen configurations, scores automatically rise. For home games, it is probably better if the program randomizes enemies prior to each round, because it improves long-term replayability.

The armchair pilot uses the joystick to control a heavily armed ship. The craft cruises up the display and battles mobile and stationary enemies on the vertically scrolling playfield.

To win, the pilot must complete all three multiscreen levels before expending the ship's three precious lives. The mission starts with a raid against land-based strongpoints which are protected by waves of interceptors. The second phase adds enemy guns that can hide beneath the waves until the ship flies within range. The final section is an op-art nightmare in which showers of pesky defenders explode across the playfield with blinding speed.

The player starts with a twin laser cannon as the main weapon. The ship can transform into six progressively more destructive configurations to deal with the hostile gun batteries and fighter squadrons.

Power capsules periodically move into view on the screen. Shooting one gives the ship enough energy to transform to a deadlier state.



The ship can also wipe the screen blank at the touch of the space bar with a smart bomb. The player receives only three bombs per life, so they must be saved for the most extreme situations.

Besides enemy aircraft and gun emplacements, the ship also fights several huge aliens. They constantly launch screening fighters, so it takes a combination of accurate shooting and timely detonation of smart bombs to send the deadly giants scurrying for cover.

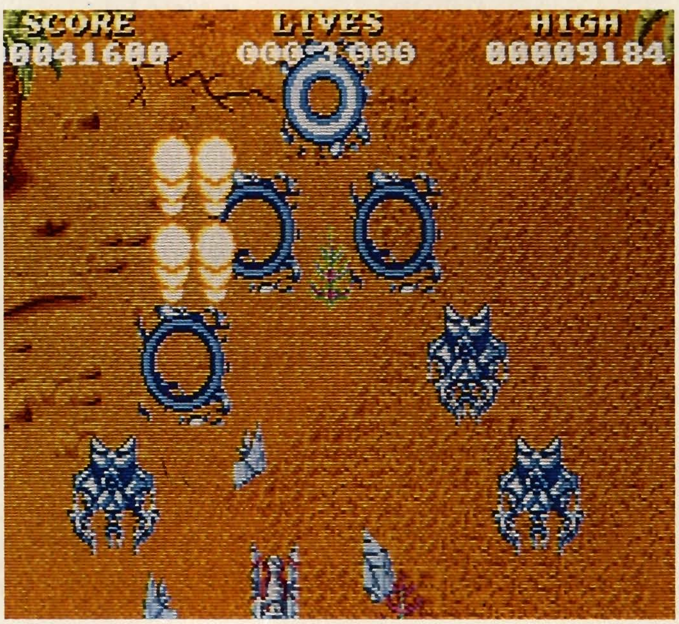
Played at the default setting, *Hybris* could overwhelm less skillful gamers. An option menu, reached by hitting the space bar prior to the start of play, lets the user pick the number of lives, change the frequency and speed of hostile fire, make power capsules appear at shorter or longer intervals, and adjust the length of time the ship remains in a transformed state.

State-of-the-art execution is the key to *Hybris*. Certainly the theme will never win any prizes for originality. It is basically one more flying gun blasting through waves of alien defenders.

So, *Hybris* isn't anything special, until it boots. Then this scrolling shoot-out's frantic pace, high degree of difficulty, and excellent illustrations and stirring musical score work their magic. *Hybris* is definitely one of the reasons you bought a joystick for your Amiga.

Discovery Software, 163 Conduit St., Annapolis, MD 21401 (phone: 301-268-9877). *—Arnie Katz & Bill Kunkel*

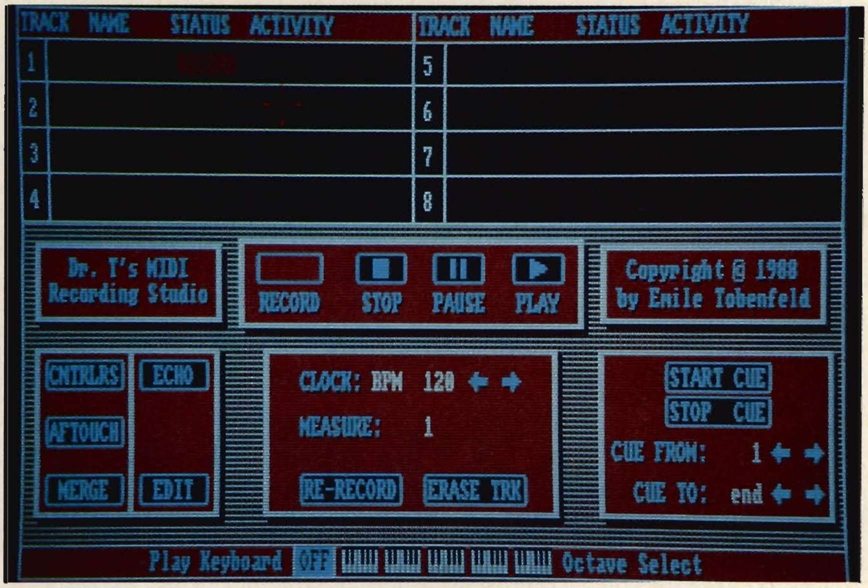
Many gamers will find Hybris *difficult to play. The game is programmed to wipe the contestant out early, much like a coin-op machine. The pilot must complete all three multilevel screens without expending his ship's three lives.*



MIDI RECORDING STUDIO

Dr. T's Music Software
Amiga with 512K
Price: $69.95

Dr. T's is perhaps the leading publisher of music software for personal computers. Its flagship sequencer program, *KCS*, is full-featured, but perhaps too complex for the first-time user. To address this market, Dr. T's has come out with a "stripped down" version of *KCS* called *MIDI Recording Studio* which retails for $69.95. Despite this low price, the program contains all the features the amateur musician would need in a sequencer.



Eight blocks at the top of the MRS *screen represent the eight tracks you'll record on.*

PHOTOS: MICHAEL R. DAVILA

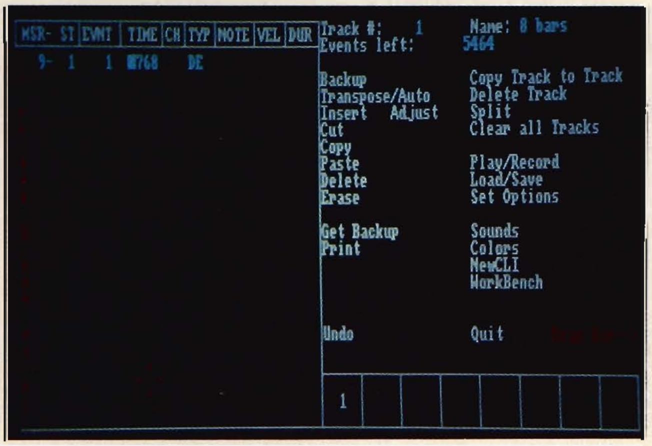
MRS acts as an electronic eight track tape deck into which you feed the MIDI output of your synthesizer (via a MIDI interface plugged into the serial port of the Amiga). You also have the ability to enter notes with the computer keyboard. For those beginners who think MIDI may be an expensive proposition, think again! You can get a nice MIDI capable synthesizer for under $180 (the Yamaha PSS-480), and the MIDI interface is available from a number of suppliers for about $50.00. Thus, for around $300, you and your Amiga are ready to doodle.

When you boot up the program, you will be viewing the first of the two primary displays—the play/record screen. The top portion contains eight rectangles, one for each of the eight tracks, and they contain the name of the track as well as their status (play, record, or muted). Below the track display are a number of buttons which can be activated by clicking on them with the mouse. They are similar to buttons on an actual tape deck and allow you to record, play back, and pause the sequencer. This screen also shows the tempo and current measure, and has a section to index and mark any portion of the recorded sequence for looping. At the bottom is a graphic representation of a piano keyboard where you can select the octave of the sounds that will be played when you press the keys.

In its default mode, *MRS* sits patiently waiting for you to begin playing. As soon as you press a key, the sequencer starts recording and the internal metronome clicks. If you want to start over, just click on the re-record button. Once you have finished recording, press the play button to hear your masterpiece. At this point, *MRS* automatically switches to the next unrecorded track, playing all previously recorded tracks over and over. When you begin to play, *MRS* starts recording again—allowing you to accompany yourself. The length of track one, however, determines the length of all other tracks. At any time during playback you can turn on and off any of the eight tracks.

To make changes to your composition, you click on the "EDIT" button and the second basic display, the Edit Screen, will appear. The numbers at





Click on a track at bottom right of edit screen, and MIDI events will be displayed on left half in standard sequencer form.

the bottom right designate the tracks you have recorded, and you can click on any of them to select the track you want to edit. Once a track is selected, the MIDI events will be displayed on the left half of the screen in standard sequencer form. Each line will represent an event (such as note on, program change, etc.), and indicates when the event begins, its duration, the type of event, and the event itself. For example, a line reading "1-1 1 0 OM C2 126 16" indicates that the first MIDI event on the track is the note C (in the second octave) being played on the first beat of the first measure for 16 timing steps. Now by scrolling and clicking on events, you can change, add, or delete any single event or groups of events. Modifications to pitch, timing, duration, and MIDI channel are simple to make. You can also easily insert program change events which tell your synthesizer to change the instrument it is sounding.

MRS has a nice auto-correct, or quantizing, feature which lets you shift the notes on a track so they will all start on a user-designated point (such as an eighth note position). Similarly, you can round off all of your notes to the nearest value you select. *MRS* also lets you cut, copy, and paste MIDI events with the mouse, just like in a word processor. For more advanced users, you can compress and expand sections of your work, rearrange them in reverse time order, and split a single track into two tracks.

A number of options can be accessed by clicking on the word "Options" in the Edit Screen. Here you can decide whether to use the program's internal timing clock or that of your synthesizer. You can also select a counting beat (which automatically starts the recording after a defined number of metronome beats). You also have the ability to set and control the timing resolution of the sequencer.

If you click on the "Sounds" option, a new window will open and permit you to load up to 16 digitized IFF sound files from disk, either individually or in banks. These can be either instruments or sound effects. Since the program looks for files with the extension ".snd", you must manually add this extension to any standard IFF 8SVX sound sample you want to use. Each of the sounds can be assigned to a separate MIDI channel, and those sounds will play any time a note is sent over the MIDI channel assigned to that sound. Remember, though, that the Amiga can play no more than four sound channels simultaneously, and the metronome is one of them.

The 80 page manual is both thorough and understandable and contains useful MIDI programming information as well as a short tutorial chapter. All of the compositions created on *MRS* can be saved in a format compatible with Dr. T's full-featured sequencer, *KCS.* And when you have outgrown *MRS,* you can trade it in for *KCS* and pay only the price difference between the two programs.

While *MRS* lacks the bells and whistles of other sequencers on the market, it was clearly designed and priced as a tool for the beginner. What it does lack is the ability to record more than one eight track sequence and combine them into songs, a punch in/punch out feature, step time recording, and track merge. Despite its simplicity, however, it has sufficient features and capabilities to make it quite useful and productive for amateur musicians, and I would certainly recommend it as an introductory music sequencer package.

Dr. T's Music Software, 220 Boylston Street, Suite 206, Chestnut Hill, MA 02167 (phone: 617-244-6954).

—Steve King

Circle #288 on Reader Service Card

THE SECURITIES ANALYST V. 1.2

Free Spirit Software
Amiga with 512K
Two disks; $79.95

It takes two to tango, the old saying goes. In business, that usually means competition—"tango" referring to a features and/or price war between various products.

In this instance, it means the introduction of *The Securities Analyst (TSA)* to battle *Investor's Advantage 2.0* by Software Advantage Consulting. Both are aimed at Amigaphiles concerned with stock market analysis.

The Basics

TSA is a two-disk unprotected program that supports pulldown menus and a mouse. It also has an adequate number of keyboard command equivalents. Nothing exceptional so far and unfortunately, that's the way it stays.

The second disk, a DataDisk for work usage, has sample data for Delta Airlines, Coca-Cola, AT&T, and others. A readme file just about rounds out the offerings.

A slim, typo-prevalent manual runs through the entire program's operation in a mere seven pages—with one page devoted to disk access procedures! The balance, approximately 21 pages, discusses technical analysis theory, includes the publisher's liability disclaimer, and sports a brief reference list of suggested reading.

The theory section includes a good number of graphs, with explanatory annotations. Though a bit messy on the more involved graphs, the overall result is satisfactory. By taking the time to understand these illustrations, you will be able to interpret the program's graphs and make proper buy/sell decisions. This section is the closest thing to a tutorial you get, so you had better pay attention!

Features

The Securities Analyst was designed for the individual investor, not institutions investing megabuck pension funds. *TSA* works by the week; that is, weekly activities are tracked and analyzed, to help overcome the roller coaster ride of daily fluctuations. It is much easier to work with, and to make decisions based on the trends which are *TSA's* stock in trade.

Ten different types of analyses can be performed, singly or in conjunction with one another. They are moving average, accumulation/distribution, relative strength, performance, point & figure, and trailing stops. The balance includes stock charts, momentum, price/earnings analysis, and performance analysis (different from the prior performance).

Options & Operation

The menus, and for the most part, command key combinations, allow you to load data, append data to a stock file already in memory, and save files in .STK or ASCII formats. Only one stock can be analyzed at a time.

Close, low, high, and other data can be edited. Existing entries can be modified; additional data can be inserted before or after specific records; and new entries can be added. Entries can also be shown one at a time, or deleted one at a time.

TSA also allows printouts or screen displays of all records (entries) for a stock. The name and comments associated with a particular issue can be changed at any time.

The Graph menu consists of five options, single or multiple graph print or display and total analysis. Up to four graphs can be viewed or printed, each one occupying a quadrant on screen or paper. The total analysis performs and prints the results of every analytic method in the package. As the manual warns, this process takes approximately 35 minutes (!) due to the printer drivers in Workbench 1.2. (The manual hints that this will improve with 1.3, but does not offer any indication of the performance increase that should be expected.)

The actual graphs are produced by choosing options under the Choice menu, after a Graphs menu option has been selected. Somewhat convoluted, but the graph display speed, accuracy, and legibility make up for this Rube Goldberg triggering mechanism.

A Color option under the Misc(ellaneous) menu allows you to toggle between black & white and color. This not only affects the screen output, but has a direct bearing on the clarity and resolution of hard copy output. (*TSA* recommends a high resolution, 24 pin printer such as the Epson LQ-1000 because they can accurately produce the needed gray scales.)

Operationally speaking, *TSA* is generally robust. Spurious keystrokes do not kill or damage this program. Turning off the printer during a graphing session, however, proved to be too much. The DOS printer trouble gadget box appeared (several times). Turning the printer back on caused the output to finish as garbage. In the end, the program crashed to the Workbench screen.

Speaking of Workbench, *TSA* does not support user adjustable windows or front/back gadgets. In other words, it circumvents the Amiga's multitasking convention.

Mumbo Jumbo Made Clear

Here's a rundown of the more important/common analytic methods employed in *TSA*.

A moving average produces a trendline which shows the direction a particular stock is taking over time. Moving averages are produced by dropping the first figure used to calculate the average and adding a new figure in its place. For instance, a nine week average would include nine figures, one each from weeks 1 through 9. The next moving average in the series would still include nine figures, but they would be from weeks 2 through 10, and so on.

A point and figure analysis substitutes upward and downward movement symbols for the actual fluctuations. These symbols represent a scale of dollars (called points). This ratio scaling compresses or deemphasizes wild fluctuations, again leading to a simplified trend which makes rough-cut analysis a viable reality.

Trailing stops are points (or dollar values) where an order is automatically given to buy or sell a particular stock. Once the stock reaches, and then breaks, that point barrier (including an offset or grace point spread), the buy/sell recommendation is issued.

In performance analysis, *TSA* works on a percentage change basis, instead of actual point (dollar) changes, as the percentage basis is a better indicator or gauge. Volatility of an issue is also factored into the equation via the coefficient of variability calculation.

Accumulation/distribution ratios clock public interest in a stock through the following equation: (Close - Opening/High-Low) * Volume. Again, this is another method of developing trends.

The momentum analysis takes a theoretical leaf from physics in that it attempts to predict when a stock's momentum (dollar or point change) reaches zero. At this time, the theory goes, the stock is set for a change in direction. If the momentum has been upward, then it is set to fall once its momentum reaches zero, and vice versa.

Relative strength is just a measure of a stock's performance against the market, or a particular indicator chosen to represent the market.

The Price/Earnings analysis (P/E ratio) is one of the most common benchmarks. It is derived by dividing the stock's price by its earning per share. A low P/E indicates an undervalued stock; a high P/E indicates an overvalued stock.

When viewing an entry list onscreen, there is no way to interrupt the process. You must view the entire list, even if the third entry is the one you were after. Whatever happened to convenience, not to mention common sense?

Another example of poor execution comes to light when editing data entries. Let's say you mistakenly elect to add (insert) an entry after existing entry number 7. Once the gadget box appears, the Cancel command will not function until you enter values in all the fields! So you have to complete the incorrect entry, and then delete it in a separate operation. This inability to cancel at any stage also applies to the other edit variations such as enter (new) or modify (existing).

To go back a step, you now have an incorrect, unwanted entry that needs to be deleted. So, naturally, you select delete. But unlike the other options under edit, the entry to be deleted is not displayed (for verification). A dialog box "Delete entry y/n?" appears. You have to have a) remembered the record number, b) used the show command and remembered the record number, c) displayed the entire list onscreen, or d) printed the entire list.

Time to Tango

The Securities Analyst is a less than stellar first attempt. When compared to *Investor's Advantage*, there's really no comparison. *TSA* cannot download quotes from online services, nor can it manage multiple portfolios. Why, *TSA* can't even handle a single portfolio! *TSA* also pales in the analysis arena. Don't bother with this one. If you need an investment analysis package, pick up *Investor's Advantage*.

Free Spirit Software, Inc., P.O. Box 128, 58 Noble Street, Kutztown, PA 19530 (phone: 215-683-5609).

—Ted Salamone

Circle #289 on Reader Service Card

FANTAVISION
Broderbund Software
Amiga with 512K
Disk; $59.95

We have come to associate the Amiga, probably more than any other computer, with graphics, video, and animation. It has incredible capabilities and lots of third party support. Unfortunately, some graphics and animation software has traded improved features for a learning curve that looks like a graph of X=1.

Fantavision takes exactly the opposite approach. It doesn't have every bell and whistle you could ever imagine, but it will have you producing simple animations within an hour of opening the box. Actually, if you are comfortable with your Amiga, *Fantavision's* two-page quick start card will lead you through your first animation in about 10 minutes. Couple *Fantavision* with a paint program for backgrounds and you can produce stunning animations complete with sound.

Don't get the idea that *Fantavision* is for weenies. One of my local TV stations uses it regularly because it enables them to create an effect without hours of painstaking work. *Fantavision* may not be the best tool if you want to win a killer demo contest, but it is clearly useful for both professionals and hobbyists.

The real power of *Fantavision* lies in its ability to "tween" or generate "in between" frames. Draw a circle in the upper left corner of the screen. For the next frame, put a square in the lower right. *Fantavision* will create up to 128 frames to slowly metamorphize your circle into a square as it moves diagonally across the screen. However, you cannot specify a curved path for an object to move along between frames. *Fantavision* can also loop the end of your animation to the beginning, so the square will zip right back into a circle and can even fade the object through a series of colors.

Fantavision allows you to work with only 32 colors at a time. It supplies you with 37 palettes (with many patterns) of 32 colors each. That's 1184 colors, but you can also modify a palette to gain access to any of the Amiga's 4096 colors. You can select any one of eight different screen sizes—from 320 × 200 to 672 × 444—but when you kick the display into hi-res format, the display collapses to the upper left quarter of the screen. And you can pick one of six color combinations—HAM, 32, 16, 8, 4, and 2 (but not halfbrite). For those of you who like to videotape your work, *Fantavision* supports overscan.

Fantavision has a number of settings that are limited by the amount of RAM in your machine. The maximum number of different objects you can create in a single frame is set to a default limit of 16, but you can enter a number up to 999. Likewise, the maximum number of points that define an object's online defaults to 64 but can be set up to 999. You can also separately set the number of points in a circle.

When it comes time to play your animation, you set the number of "tweens" that *Fantavision* will generate between each pair of frames you created (with a default of 16 and a maximum of 999). And you control the speed at which

frames are displaced anywhere from ¼ to 4 times the normal speed.

Although *Fantavision* is strictly 2D, it has a few effects that can give your animations a 3D feel. You can turn an object around its center, flip, flatten, or stretch it on the plane of the monitor—no big deal. But you can also rotate an object or lean it either horizontally or vertically. There is no shading to support these effects, but you do get a feel of perspective.

When you're ready to create objects for your first frame, you can make rectangles or circles, or draw closed objects with a series of straight lines. Smooth curves are not easy to do, and objects must be closed outlines. As you're drawing with a series of straight lines, right clicks will erase those lines one at a time.

Using the default tool, you can select and edit objects. While editing an object, you can select any point that defines the object's shape and drag that point in or out. You can also insert or delete points to reshape a completed object. When several objects overlap, front/back gadgets let you get to the one you need to edit.

As you build a frame, new objects are numbered in the order created. Simple options let you replace any object with another, make changes to an object and have those changes replicated in all other frames, and draw objects as solids, outlines, or a series of dots. You can turn an object into a bitmap or background, and even specify a whole screen as a brush; but bitmapped brushes used in animations cannot be rotated, leaned, or squashed. Other options allow you to modify a palette and use it in other frames to cycle an object through the various colors in a palette, and to leave an afterimage or a flashing effect as an object moves.

Including text is no problem. You can select a font in normal, bold, italic, or underline, and specify justification within a box. During an animation, text maintains its original characteristics while the text box changes size and shape. I found that for some of the effects I wanted to create I couldn't use text, but had to draw my own letters as objects.

When you have a frame all set to go, you can continue with a new blank frame or by cloning (copying) the frame you just finished. Working with a clone is great. Grab objects, resize, move, and edit them, and you're in business. If you want to see how your new frame compares to the previous one, *Fantavision* has an overlay option that will display the first frame as a non-editable backdrop to the second.

By manipulating a slider, you can select any frame you've created, or step through a series of frames. Still, you'll have to play your animation to check things out. Say, for example, that you want to move a blue box across the screen. If the four corners of the box (1-2-3-4) in the first frame get reversed (3-4-1-2) in the second, your box will go through a strange transformation in the "tween" frames.

When you've designed all your frames, you'll be able to link them sequentially or select groups of frames to loop through a specified number of times. Once your animation is just right, you can save it on a disk with the Fantaplayer program so you can share your creation with your friends. Fantaplayer even supports scripts so you can play a sequence of movies—controlling speed, repeats, palettes, etc.

Sounds are added to individual *Fantavision* frames. You select a digitized sound from a disk and then set the volume, balance, pitch, duration, echo, and sustain. *Fantavision* comes with a set of 19 sounds, but you're free to use any digitized sound in the 8SUX IFF format. Because sounds can also be modified between frames, you can use a small number of sounds (and save RAM), while creating a varied soundtrack.

Fantavision's user interface offers just what I look for. Most of the menu commands and mouse movements have keyboard equivalents. Though the mouse is more intuitive, the keyboard can be faster. When working on a frame, the window bar and four windows may be a distraction. So *Fantavision* lets you remove any or all of them or reposition the windows. There's also an "expert edit" option that will constantly display the current frame number, the number of objects on your screen, and the number of tweens per frame.

Fantavision's documentation is at once a strength and a weakness. The 63-page manual helps you to become a competent *Fantavision* animator quickly. But progressing to the expert level will require experimentation and some head scratching, because some detail is missing. Be sure to check the DOC files on the disk for late additions.

Fantavision is a perfect program if you are an amateur who wants to experiment with Amiga animation or if you need to knock out quick animations. Its lack of advanced features is exactly what makes it useful for most of us casual users.

Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101 (phone: 415-492-3200). —***Richard Herring***

Circle #298 on Reader Service Card

Now For The Amiga!

Are you tired of fumbling under or behind your computer to swap your mouse and joystick cables? Are your cable and computer connectors worn out from all the plugging and unplugging? Then Mouse Master is a must for you!



$39.95
plus shipping & handling.

VISA MasterCard

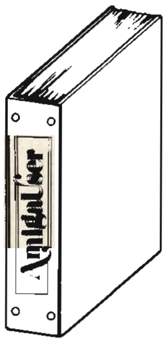
(602) 322-6100

Practical Solutions®
1135 N. Jones Blvd., Tucson, AZ 85716

MOUSE MASTER

Circle #294 on Reader Service Card

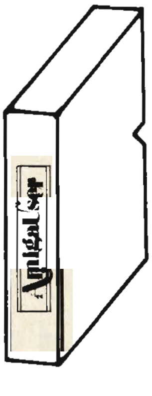
Store Your Collection Neatly and Conveniently with AmigaUser Binders and Slipcases



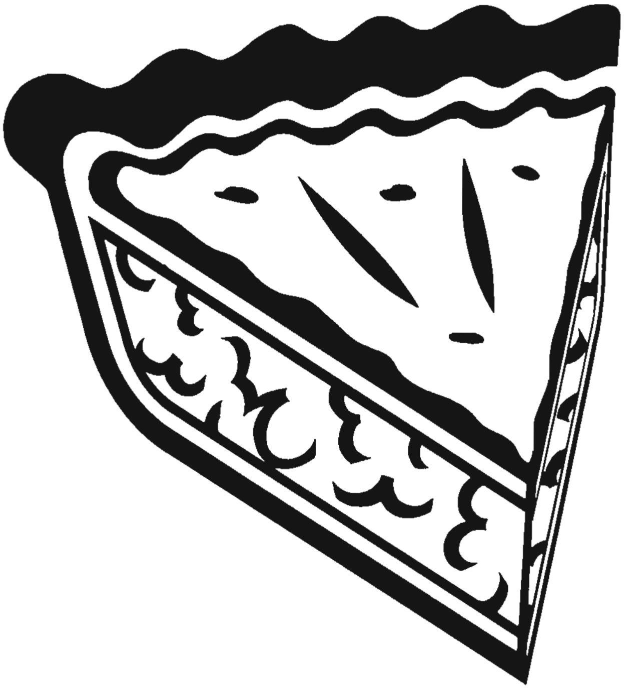
These official binders and slipcases turn a year's worth of *AmigaUser* into a textbook on Amiga computing! Our quality-constructed binders use metal rods to hold each magazine individually, allowing easy reference to any issue without removal. Our sturdy slipcases protect your collection while allowing easy removal of issues. Sporting a rich red casing with a silver *AmigaUser* logo imprinted on the spine, these binders or slipcases will be the pride of your computer bookshelf.

To order, send $15.50 (US funds) for each binder or $13.50 for each slipcase to:

AmigaUser Binders/Slipcases
Ion International Inc.
45 W. 34th St.–Suite 500
New York, NY 10001
(Outside Continental US add $2.50 per binder/slipcase. Allow 4-6 weeks for delivery.)



As American as...



It's true, our Consumer Information Catalog is filled with booklets that can answer the questions American consumers ask most.

To satisfy every appetite, the Consumer Information Center puts together this helpful Catalog quarterly containing more than 200 federal publications you can order. It's free, and so are almost half of the booklets it lists. Subjects like nutrition, money management, health and federal benefits help you make the right choices and decisions.

So get a slice of American opportunity. Write today for your free Catalog:

Consumer Information Center
Department AP
Pueblo, Colorado 81009

A public service of this publication and the Consumer Information Center of the U.S. General Services Administration

FLOTSAM

Send your comments on any aspect of Amiga computing to *Flotsam*, c/o *AmigaUser*, Ion International Inc., 45 West 34th Street—Suite 500, New York, NY 10001. Only letters that are typed and double spaced will be considered for inclusion.

I enjoy reading your magazine and think it's great. I hope that you can answer one question for me concerning the Amiga.

I know that there is a lot of piracy going on, but there are some of us who like to keep backups for our own personal use and financial protection, especially considering that some of the better Amiga programs go for $100 or more apiece.

Are there any copy programs out there for the Amiga that can copy both protected and unprotected software effectively? Could you please tell me some of the better ones? Thanks for your time, and keep up the excellent work in *AmigaUser!* —Kenny Toomey
Harrison, TN

Most honest computer users feel the same way you do. It's a shame that the bad eggs have forced software companies to put heavy copy protection on their titles. Many companies have realized the necessity of backing up your investment, and have removed all forms of copy protection, or have turned to the software manual or spin-wheel formats.

Two of the most popular and most highly recommended copiers available are Marauder II *by Discovery Software International and* Project D *by Fuller Computer Systems. Remember that each of these programs will copy only certain programs and not others. As new titles are introduced, new parameter disks will become available from the copy program manufacturers. These parameter disks will allow you to copy the new releases.*

I would like to start out by saying that I'm glad *AmigaUser* is now on a monthly basis. I've had difficulty obtaining your magazine on several occasions, and now realize it was due to your irregular publication schedule (first quarterly, then eight times a year).

Having missed the previous two issues, I was pleasantly surprised when a friend of mine gave me your January '89 issue during the Christmas holidays. When I finally had the time to sit down and go through it, I started at the beginning and progressed through the articles and ads sequentially, something I rarely have the time to do.

When I finally arrived at the *Art Gallery*, I was astounded when my eyes fell upon one of my pictures. Quite a nice surprise over the holiday season. And then to find out that I would receive a year's subscription. You guys think of everything! —Roger McVey
Phoenix, AZ

I have heard a lot about Kickstart 1.3, Workbench 1.3, and AmigaDOS 1.3. What are the differences and advantages of 1.3? When will these be available (if not already), and where can I get my hands on them? And when will the DOS manual for 1.3 be available? —Darren Evenson
Holmen, WI

All three have been available since the latter part of November 1988. You can purchase them from most Amiga dealers for about $29.95. The software package comprising three disks and a manual is entitled "Enhancer Software" (serial number A5211). The new enhancements that have been made include a new operating system that will allow the Amiga to boot automatically from a hard disk drive; new printer drivers that allow for faster printing and for more printers; a recoverable RAM drive; additional fonts for text; a new hard disk fast file system; and a new math library that allows for faster calculations and use of the 68881 Math Coprocessor chip.

If you own any Amiga other than the A1000 and want to upgrade your ROM to Kickstart 1.3, you will have to bring the machine to an authorized Commodore Amiga service center for installation.

After five days' experience with my new Amiga 2000, it has become painfully obvious why IBM is and will always be the leader in serious computing.

On the first day after Christmas my son loaded a fresh out of the package, straight from the factory, program into the Workbench prompt. The message that came forth was, "Your Amiga is alive and well and it has been infected by a virus by ——? Other disks may be infected." As a result, we are out at least $50.00 for the program, and we still haven't determined how many other programs were infected. When I called the company in Canada, they simply treated it as a prank and advised me it could not happen on a factory disk.

On the fourth day after Christmas my son followed the instructions on the printed data which comes with *Battle Chess* and proceeded to load the program into our brand new $900 Great Valley Products hard drive. Unfortunately, after spending the second and third day after Christmas loading other applications programs into the hard drive successfully, as you have probably guessed, *Battle Chess* wiped out all the work that went into our hard drive.

I currently own three IBM format computers which I use daily in my office, and have never encountered a problem as potentially financially devastating as what I experienced in less than five days with the Amiga.

Why are the manufacturers and distributors of these software packages, who scream don't copy, not taking seriously the problems which are affecting their products and doing something to protect the consumer? The threat to the manufacturers is from within, not from the end user.

Mine has been an expensive, time consuming, and frustrating experience which has taken away the joy of a com-

puter with fantastic potential. The manufacturers may one day take seriously the problems associated with product liability, but Amiga will never compete on the level of a professional product for producing serious results while malignant hackers are able to cause such a degree of damage.

—Miles A. Price
Coral Gables, FL

I am considering the purchase of an A501 internal RAM expansion module for my Amiga 500. It is my understanding that some programs will not run with expansion memory present. Do you know of any switchable internal expansion modules or software fixes, such as the INT-SWITCH available in England through George Thompson Services? Any information about such hardware or software would be greatly appreciated.

—Arnold H. Szporn, M.D.
Teaneck, NJ

It is true that some software products will not operate if the A501 RAM expansion module is installed in the Amiga 500. We have found that most of the software that is manufactured in the US will work with the A501. However, titles imported from the UK and other countries sometimes encounter difficulties if any RAM expansion module is installed. Also, many titles that were created before the A500 was introduced may run into problems.

If you do encounter an incompatibility problem with the module, you can normally bypass it by running the NoFastMem program found in the System draw on your Workbench disk.

If you are hesitant to buy the A501, you should set aside your fears. The advantages of owning a RAM expansion module greatly overwhelm the very few disadvantages of owning one.

I enjoy your magazine. Your efforts are certainly worthwhile. I have read about many things for the first time in your publication, months before their appearance elsewhere. I especially appreciate your policy of using Amiga-created artwork for the covers. Not enough Amiga publications do this.

The Amiga, I am sad to report, is still not being taken seriously in pro circles. The folks who swear by their 386 AT's and their vector-graphics software are unconvinced that the Amiga is anything other than a toy. Unfortunately, I have yet been unable to demonstrate otherwise. What we need is a powerful vector-based graphics package in order to compete. I await this development anxiously.

—Terry Lowe
Vancouver, BC

The Atari 800 is ten times as good as the C-64!

This statement and its counterpart were the beginning of many an emotional argument in years past. But today, the advent of the Amiga casts an interesting twist on competition between the Atari and Commodore brand names.

The Amiga, that is, the basic concept of the Amiga, was developed at Atari, while Atari was still owned by Warner Communications. The Amiga's basic development was done by both Atari and Amiga, Inc. technicians. It was originally to be the next-generation Atari computer.

In order to write a letter instead of an article, I won't try to tell the whole history of the Amiga. What's important is the result: that Commodore ended up with the Amiga and Atari (the new Atari Corp.) brought out the ST.

This turned out to be, in my opinion, the best thing that could have happened to all home computer users. The Amiga is one great machine, and Commodore seems to be a lot better at getting it to the marketplace. Atari, Inc. is having lots of trouble selling ST's in this country, and software support seems to be diminishing daily.

Which leads me to the point of this letter. We "Atarians" are every bit as proud of our 800's as C-64 users are of theirs. The same people who designed the custom chips that made the Atari 800 so special also designed many of the Amiga's custom chips.

The Amiga has the best of Atari's roots and the best of Commodore all in one machine. I'm sure you "Commodorians" are proud of the Amiga, and if more "Atarians" knew the history of the machine, they would be just as proud to become "Amigians."

The Amiga is neither the "next-generation C-64" nor the "next-generation 800," it's the next generation of home computers!

—Bill Wright
Godfrey, IL

From our understanding of the Amiga's genesis, Bill, you're crediting Atari with a far greater role than it deserves. Anyone who's heard R.J. Mical's entertaining talk on the birth of the Amiga would certainly agree with us. But your point is well-taken—the Amiga is a descendent of Atari as well as Commodore. Atari owners have always tended to number among the most loyal of computer users; and with the ST dying out, it would be a boon to the Amiga community for Atarians to embrace the machine that could just as easily have borne the Atari brand name.

ERRATA

The documentation to *Amigavaders* (Feb. '89) referred to two statements that represented "very different logic." Unfortunately, the two statements that we printed were identical. The statements should have appeared as follows:

```
1. IF A=0 THEN A1 = A:B1 = B
2. IF A=0 THEN A1 = A
   B1 = B
```

Which just goes to prove the authors' point—that the statements in question are easily confused. As are we.

A reminder to readers who've had trouble in the past distinguishing the numeral "1" from the letter "l" in our program listings—we're now printing our listings with a different daisy wheel that corrects the problem. Additionally, 0's are slashed at upper left and lower right to help you distinguish them from capital O's. We'll gladly send you a listing of any program published before these changes, marked to eliminate confusion. Write to *AmigaUser* Program Listings, Ion International Inc., 45 West 34th Street—Suite 500, New York, NY 10001.

FREE ADDITIONAL INFORMATION!



Our research shows that our readers are discriminating buyers. The majority of you are intermediate to advanced users, who seldom purchase a printer, a modem, or even a space shoot-em-up on impulse. But purchase you *do*—after making an intelligent choice based on all the information you have.

So why not make sure you have all the information there *is* to have—for the cost of a single stamp?

Most of the companies listed at right are eager to send you free promotional materials relating to their products or services. All you have to do is detach the Reader Service Card included here, circle the numbers that correspond to the items you're interested in, and stamp and mail the card prior to the date shown.

Manufacturers and mail order houses alike know that *AmigaUser's* following is an extremely computer-literate one. They respect that kind of sophistication. So use only our Reader Service Card to request information on products seen in our magazine. And when contacting companies directly by mail or phone, be sure to tell them who sent you.

READER SERVICE INDEX

Page	Company	Number	Page	Company	Number
8	Aegis	267	C-3	Montgomery Grant	255
13	Aegis	270	7	Oxxi	263
8	Applied Visions, Inc.	282	8	Phoenix Electronics	264
12	Broderbund Software	276	48	Practical Solutions	294
46	Broderbund Software	298	13	PrintManager, Inc.	286
9	Camerica Ltd.	271	13	Progressive Peripherals	268
7	Communications Spec.	262	14	Progressive Peripherals	269
46	Comp-U-Save	296	12	Rainbird	275
18,19	Computer Direct	240	40	Rainbird	291
8	CompuServe	283	33	Software Excitement	258
10,11	Creative Computers	175	9	Spectrum HoloByte	274
C-2	Datel Computers	259	12	Taito Software	277
13	DevWare	284	13	The Source	285
39	Discovery Software	290	41	Three-Sixty	292
41	Discovery Software	293	9	Titus	272
43	Dr. T's Music Software	288	17	True BASIC Inc.	254
7	Express-Way Software	265	47	Wedgwood Rental	295
24	Express-Way Software	261	29	World of Commodore	260
44	Free Spirit Software	289		*AmigaUser*	
15	Go Amigo!	241	3,4	User Group Offer	–
14	Impulse, Inc.	297	20	Program Disk	–
12	Incognito Software	280	34	Subscription	–
9	Infocom	273	48	Binders	–
7	Inkwell Systems	266	54	Bulletin Board	–
25	LightSpeed Distribution	256	57	Back Issues	–
12	Magnetic Images	279			
8	Memorex Corporation	281			
C-4	Microdeal	257			
12	MicroIllusions	278			

The publisher cannot assume responsibility for errors in the above listing.

Software and Applications for the

PAINT, PRINT,

Last issue we gave you an overview of Abacus' *AmigaDOS Inside & Out.* This time we'll get into some of its specific tips—and situations where they can be particularly helpful to the business user. We'll also delve into *DeluxePaint II* from Electronic Arts, *Express Paint 3.0* from Professional Automation Resources (PAR Software; distributed by Brown-Wagh), and *ProWrite 2.0* from New Horizons.

TIPS & TRICKS

Searching for files is always a hassle, particularly when you're working with large hard drives or numerous small files. Like most people, I save versions of the same file with similar or sequential naming conventions, such as Mount, Mount1, Mount2, etc. When I want to batch output them, delete them, or perform other housekeeping chores, it's much easier to work on multiple files simultaneously—instead of deleting them one at a time, for example.

That's where the "#" and "?" characters come into play. Working with the CLI, you can use these characters, alone or in conjunction, to manipulate or merely find files with similar naming conventions. The question mark acts as a wild card matching a single character; the number sign matches against multiple characters.

For instance, my series of Mount to Mount7A could be identified and manipulated by M#, Mount#, Mount??, or M#t#, to name a few. Another aspect takes advantage of the "#" sign's "numeric" nature; for example, "#2T" would be shorthand to match files with two T's in a row.

How many times have you tried to use your printer for envelopes and small labels, but found precise text alignment and placement to be a major stumbling block? If you're like me, many, many times. On IBM compatibles I have a small utility program that does the trick, but it often interferes with the operation of other programs. Luckily for you, the Amiga's CLI can direct output right to your printer, on a line by line basis—the ideal way for handling envelopes and the like.

The actual instruction is very simple: "copy * to prt:", not including the quotation marks. After entering that command you merely type what you want and press RETURN. Presto, the text is transferred to your printer. Make a mistake? That's okay, just backpedal to correct the offending character(s) or press CTRL-X simultaneously to erase the entire line—before sending the text to the printer via the RETURN key.

As noted in the Abacus title, the Workbench clock has a number of disadvantages. That's why they've provided the following timekeeping gem. By entering these two simple lines, followed by RETURNs, you'll have a great reminder for your next appointment or task. After all, you don't want to be late meeting that special client or the loan officer at the bank.

```
Run wait 10 min +
Echo "Hey, the coffee's done!"
```

These are just a few of the CLI tips from *AmigaDOS Inside & Out,* with plausible scenarios added to show how useful they can be in the real world.

THUMBNAIL REVIEWS

EA has released *DeluxePrint II,* a $79.95 non-copy protected upgrade of the original Amiga printing program. Running on any Amiga with 512K, Kickstart 1.2, and a single floppy, *DPII* nonetheless works best with 1 meg of RAM.

Its forte is making Point of Sale (POS) signs and banners, flyers to promote sales and other special events, posters, business cards, product pricing labels, employee/visitor name tags, and related (low budget) promotional materials. Other uses, not necessarily business-oriented, include four-panel greeting cards, calendars, invitations, and stickers.

The prime benefits of the program are low cost, relatively fast turnaround (versus outside production), and quality (output device dependent).

DPII, which comes with over 160 graphic images, also uses the optional library disks sold for the original program. As expected, it imports *DeluxePaint II* files (standard IFF).

DPII is touted as the only printing program designed specifically for the Amiga. While that is true, that statement does not necessarily guarantee maximum performance.

Output is in color or black and white, depending on your hardware. Color control is adequate; so are the edit features such as copy, cut, paste, size, flip, etc. The program is not as intuitive as it could be, but a little experimentation, mixed with selected reviews of the manual, helps put the pieces together.

Small Businessman

By Ted Salamone

AND MORE

Backgrounds can be up to 32 colors, from among 4096; palette control consists of (R)ed, (G)reen, (B)lue and (H)ue, (S)aturation, (V)alue sliders. The manual, a typical EA affair, is not designed for thorough reading or for quick reference. It does, however, include a decent index, a comprehensive reference section (not easy to get around), and a chapterful of sample projects.

If you get the feeling that my thoughts on *DPII* swing back and forth, you're dead right. Despite all the positives mentioned, some things are just not kosher.

For example, there are no command key alternatives to the menu commands. There's no sign of a separate quick reference card. To offset slow output, creation and use of a RAM drive (print spooling) should be an easily instituted option. Most important for a print program—Workbench 1.3 is not provided.

Why is this so important? Because 1.3 includes a host of fantastic printer options, from high resolution 18 and 24 pin dot matrix output to color printers such as the Hewlett-Packard (HP) PaintJet, Howtek Pixelmaster, Xerox 4020, Toshiba 351SX, and Calcomp Colormaster series. The HP DeskJet and ThinkJet are also included.

This failure to include enhanced printer support is what I meant by no guarantees on maximum performance. EA could have easily included 1.3; many less capable companies have been doing so (at least certain parts) for many months. (EA could have easily gone further by adding custom plotter drivers for devices such as Hewlett-Packard's 74XX and 75XX or the Fujitsu ImageGraph personal plotter. After all, the name of the game in a print program is output.)

In the end, *DeluxePrint II* satisfies certain needs at an attractive price point; but if you don't need it immediately, wait for an upgrade or a more feature oriented competitive product.

PROWRITE

ProWrite 2.0 is a significant upgrade to its progenitor, and it does feature all the benefits of the 1.3 operating system. But that's not why I find it useful. Its ease of use, image import feature, and color font capabilities make it a powerhouse alternative to full-featured desktop publishing programs like *Professional Page* and *Shakespeare.*

When you need to do a quick flyer (with a lot of text as opposed to *DeluxePrint II's* graphic orientation), make employee announcements, or just create attractive memos and peer-to-peer presentations, *ProWrite 2.0* is the one to boot.

This two-disk (system and program), non-copy protected word processor retails for $124.95 and requires 512K RAM. New features include much faster graphics output (up to 10 times faster than before), a 95,000 word spell checker, and an easy to implement mail merge (from within *ProWrite* or a database).

Command key alternatives are provided for most menu functions, up to eight documents can be open simultaneously, and IFF and HAM images are supported, as well as multiline headers and footers.

The manual covers several installation options, printer options, and error messages, and has a good reference section. The index, table of contents, and learning sections are just as good.

PW is really color oriented, another reason it is ideal for light and medium desktop publishing type projects. A menu option allows you to adjust displayed colors so they match colors output by your printer! This is a simply fantastic feature which cuts down on the cost of color proofs and the amount of time spent getting things right.

A special utility, DIM COLORS, automatically selects colors designed to reduce flicker (both high and medium resolution versions of *ProWrite* are included) if you do not have a proper monitor. Besides saving your eyes, this utility pointed the way to a very nice *PW* feature—the ability

Companies Mentioned in Exec File

Abacus
5370 52nd Street SE
Grand Rapids, MI 49508
Phone: 616-698-0330

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Phone: 415-571-7171

New Horizons
P.O. Box 43167
Austin, TX 78745
Phone: 512-328-6650

PAR Software
P.O. Box 1309
Vancouver, WA 98666
Phone: 206-694-1539

Brown-Wagh Publishing
16795 Lark Ave., Suite 210
Los Gatos, CA 95030
Phone: 408-395-3838

to launch multiple documents or documents/environments simultaneously.

By holding down the SHIFT key while clicking on document, or utility icons like DIM COLORS, you can select multiple items for launching. Merely doubleclick on the last icon, and up to eight documents (memory notwithstanding) will open automatically one after the other.

ProWrite 2.0 comes highly recommended for the business user.

EXPRESS PAINT ON A NEW TRACK

The last upgrade covered in this installment is *Express Paint 3.0*, a two-disk unprotected application that retails for $139.95. Though it needs only 512K RAM for its basic features, the more the merrier. (Some of the sample files require better than two megabytes, so you get some appreciation of the power you'll have on tap.)

In a nutshell, major new features include virtual paging (the ability to create an image whose size is limited only by available RAM), nearly unlimited undo's (almost 50 operations can be undone), three dimensional perspectives, four-way gradient fills (dithering with complete user control of the up to four colors entered into the mix), and 3-D antialiasing tools. Others are color cycling, acceptance of ColorFonts (via a separate utility), enhanced zoom and view modes, overscan, and the 1.3 operating system, sort of (more on this later). *EP 3.0* also works fine with Kickstart 1.2.

Now that you know the additional features, I'll go over the annoyances. First, the new release does not have a new manual. Instead, there is a supplement to the previous manual; the supplement, at 140 pages, is 5 pages longer than the manual itself!

Second, the quick reference card does not note any of the new features—including an entirely new menu heading. Last of the major quirks—none of the 1.3 printer drivers are provided!

Since the supplement is well done, apologizes for its size, and promises to combine the two documents post haste, I'll pass on any more criticism. The reference card, however, should have been completely updated. Finally, the decision to leave out printer drivers has got to be one of the classic software marketing errors of 1988, if not forever. Instructions are available so you can add the drivers to a working disk, provided you purchase them separately. Or you can send a blank disk to PAR and they will return it full of 1.3 drivers.

Not everyone is going to have the drivers from another source, or want to pay extra for them anyway. On the other hand, waiting for them to arrive from PAR, and then having to install them, is an unnecessary nuisance. Instead of all the sample drawings (on two disks no less), the drivers should have been provided. Nothing else makes sense.

During its workouts, *DP* has proved to be robust, not a crash and burn to be found. Screen redraw is fast, and the virtual page, smear, smudge, and antialiasing capabilities are implemented well. The advanced dithering/gradient fill capabilities are outstanding, though one minor problem was encountered. When doing a large area gradient fill the operation appears to start. The "working" message appears onscreen, then the background flashes white, and nothing else happens. No fill, no error message. The workaround is to fill in subsections until the entire area is filled. Not elegant, but better than a program lockup or a guru visitation.

After all that, you ask, why would I consider or even recommend *Express Paint?* It's simple—*EP 3.0* is the ideal tool for complex graphic layotus (to support desktop publishing or for standalone needs), storyboards, and related creative tasks. Work can be easily done for international clients, as PAL, NTSC, and overscan (for both modes) are supported. Colorfont support also makes *EP* a tremendous title generation tool for amateur, professional, or broadcast quality jobs.

Despite its flaws, *EP* rates an 85 to 90; without them the score would be 90 to 95, as it basically does what it sets out to do.

Send your correspondence to Salmone & Associates, 42 Canterbury Road, Bridgeport, CT 06606. ☐

Programming in C on the Amiga

PART I: GETTING YOUR C-LEGS

By Paul Maioriello

How often have you been inundated with glowing superlatives describing the advanced capabilities of the Amiga? How many times has your jaw hit the floor as you watched an amazing demo grace the Amiga's screen? While watching those incredible demos, have you secretly wished that you could also harness that incredible computing engine?

Some people assume that the complexity underlying the Amiga's power is so great that you'd have to spend the rest of your life to learn how to write even simple programs. Some may have already resigned themselves to using their computers to run only commercial programs they have purchased, or public domain programs written by others. They feel that the Amiga is just too complex a machine for them to program.

This column has been created in an attempt to make as many people as possible aware of the sheer pleasure that can be derived from programming the Amiga. While the prospect of writing an Amiga program may be daunting at first, even the novice programmer can become productive fairly quickly with a little perseverance. While the Amiga is many things, it is primarily a programmer's machine. It was designed to be easy to program. The multitasking environment is truly a software developer's dream. Editing, debugging, and compiling programs are activities that can be performed simultaneously on an Amiga. The vast assemblage of existing routines available to the programmer means that we don't all have to keep reinventing the wheel.

The purpose of this column is to help you learn to program your Amiga in the C language. We will assume very little prior knowledge about C or the Amiga. This will make for slow going at first. With time, however, we will pick up speed, and hopefully the interest of a wider audience of programmers.

WHY USE C?

The first question many users ask themselves is, why use the C language to program the Amiga? There are many ways to answer that question. Experienced programmers tend to treat things like editors, programming languages, and even computers themselves with something akin to a religious fervor. Regardless of what I say to convince you that C is the ideal language in which to program the Amiga, others can make valid claims for languages they enjoy. Many programmers claim that languages like BASIC are easier to learn. Others will say that any language of a level higher than assembler is a copout.

I will not try to sell you on C in one article. Fortunately, the Amiga programmer has a wide range of languages to choose from. If you are dead set on a particular language, by all means use it. You can probably still gain some insights from this column and use your language of choice to implement them and explore further. I would, however, suggest that everyone get somewhat familiar with C. After all, most of the Amiga software is written in it. Many examples in various reference books and tutorials are written in this language. If for no other reason, everyone would be wise to learn enough C to be able to readily convert these to whatever language they are using.

SOME PRELIMINARIES

The compiler I use is *Lattice C V4.01* (soon to be *V5.0)*. The examples that will be provided in this column will be tested using this compiler. My Amiga environment currently consists of an Amiga 2000 with the stock 1 megabyte of memory, two 3.5" floppies, and approximately 65 megabytes of hard disk storage. While the hard disks are nice, the memory and at least two floppy drives are crucial. I would strongly recommend that anyone who wants to enter and run these programs have at least the minimal 1 meg-

two floppy configuration mentioned above. If any problems or questions arise during your reading of this column, or while attempting to compile and run the program, I can be contacted through *AmigaUser.* It is currently intended that this column appear in *AmigaUser* on a monthly basis. Now let's get on to our first C program!

THE VENERABLE HELLO WORLD

It is quite customary when learning to program in C to write a simple program that prints the message "hello world" on the screen. This is the first program example in what is commonly called the white book: "The C Programming Language," published by Prentice Hall, considered to be the ultimate reference book for the C language. It was written by Brian Kernighan and Dennis Ritchie at AT&T Bell Laboratories, where the C language was developed during the 1970s. While printing the message "hello world" is not particularly useful, it will accomplish several important objectives. In order to get even this minimal program working we will need to do the following:

1. Enter the program text into a file
2. Convert the file into something we can execute
3. Actually output some data (the message) to the Amiga's screen

Before we go any further, here is the actual C code that prints the message to the screen:

```
void main( )
{
printf("hello world");
}
```

We will not have space this month to talk about the code itself. Rather, we will concentrate on getting it entered, compiled, and run. To enter the code use any editor/word processor capable of creating a plain text file. Do not use word processing programs that imbed printer control information in the text—that would confuse the compiler. The ed screen editor that comes with the Amiga works admirably as a programming editor. If for some reason you have no editor, you can create the file right from AmigaDOS. To do this enter the following command followed by a carriage return (this assumes the file to be created will be called hello.c):

```
copy * hello.c
```

You can now begin typing the text of the program, again pressing the RETURN key at the end of every line. When you have typed the ending brace (}) enter a control \. That is, hold down the control (CTRL) key and press the backslash (\) key. This signals AmigaDOS that you are done. While this method is okay for our "hello world" program, you really want to get an editor to enter larger programs.

At any rate, now that our program exists in a file, we should refer to it as something. The file hello.c contains the source code for our program. This source code is something that we as programmers can read and comprehend. To your Amiga, however, this is gibberish. It requires an executable file that can be loaded and run. Our source file does not fit this bill. It is the job of the compiler and linker to translate our human readable source file into an executable entity that the Amiga can run when we type the name of the program. All the commands you use every day from the CLI started out as source files. They had to be compiled or assembled and linked. Once that process was complete, the commands could be loaded and executed by typing their name or clicking on their icon.

Let us now transform our hello.c source file into an object code file. The object file is an intermediate point on the way to creating our executable file. The *Lattice C* compiler will be happy to perform this transformation for us as long as we ask it to properly.

INVOKING THE COMPILER

Before we can compile the program, we need to set a few things up for the compiler. *Lattice C* creates an intermediate file called a quad file as part of the compilation process. We are not particularly interested in this file. We must, however, tell *Lattice C* where to create it. This can be accomplished using the Amiga assign command. Typing the following command will cause *Lattice C* to create its quad files on the RAM: device:

```
assign quad: ram:
```

If for some reason you do not want to use the RAM: device, merely reassign quad: someplace else. Be forewarned, however, that assigning quad: to a real disk device (like df1: or df2:) will slow down the compilation process, since the quad file will be created on a real disk. A few other assignments should also be made. We need to tell the compiler where included files and link time object code libraries are. We must also tell the compiler driver program where the various parts of the compiler are located. All these mysterious things can easily be referenced using the AmigaDOS assign command. The hard part is figuring out where to keep them all. Since you are the only one that knows how much free space you have, you will have to think a little about where to locate these parts.

If you have a floppy-based system, I suggest that you create a set of dedicated floppies for your development environment. Start out with a boot disk containing a minimal CLI environment. Add to this disk the Lattice-supplied programs that comprise the compiler. These are: blink, fd2pragma, lc, lcl, omd, and oml. Note that this is pretty much the complete set. You will not always need them all. If space is really critical you can leave omd and oml off the list. These programs can be found on disk 1 as distributed by Lattice in the c directory. Of these programs, the one called lc is the main driver. It needs to know where the invoked programs (lcl and lc2) are located. This is accomplished by assigning the logical name lc: to the directory that holds these programs. Note that the lc driver program itself must be located in a directory that is searched by AmigaDOS. If you do not understand how the Amiga finds commands, refer to the discussion of the PATH command on page 32 of the *Amiga Enhancer Software V1.2* documentation.

We now need a place for the files included at compilation time. These files are on the Lattice distribution disk

2 in the directory compactH. They are stored here in a compacted form to save space. Even in their compacted form, they will take over 60 disk blocks. If you would like to take a look at them in their non-compacted form (over 100 disk blocks), they are on the third distribution disk in the compilerheaders directory. The logical assignment include: must be set to point to wherever you put them.

The final assignment is for the link time libraries. These are found on Lattice disk 2 in a directory called Lib. The logical assignment lib: should point to wherever you put them.

Let's take a second here to summarize. We have defined four parts to your development environment. They are:

1. A place to put your source files (where hello.c was put).
2. A place to put the compiler components (referenced by lc:).
3. A place to put the included files (referenced by include:).
4. A place to put the link time libraries (referenced by lib:).

In addition, we have to put the intermediate quad files somewhere (referenced by quad:). All this seems like a lot. It really isn't. All you have to do is execute the assign statements in your startup-sequence, and your development environment will be ready to go. Alternatively, you can create a script file to perform these assigns and then execute the script file to set up the development environment. Incidentally, if you use a recoverable RAM disk, you can put your source files there during program development. This will provide a boost in compilation speed, since the source file being processed can be accessed much faster from the RAM disk. You are not sacrificing too much safety, since your source file will generally be recovered if your programming efforts result in a guru meditation and/or a reboot. Don't forget to eventually copy any files you want to keep to a real disk, however, before shutting off your machine.

Now that we have the development environment set up, let us compile our hello.c source file. First we should go to the directory that contains our source file. Now we can invoke the compiler using the following command:

```
lc hello.c
```

If you have typed the source code in properly, you should get output from the compiler that looks very similar to this:

```
Lattice AmigaDOS C Compiler, Version 4.01
Copyright (C) 1987 SAS Institute Inc. All rights reserved.

Compiling hello.c
Module size P=00000014 D=0000000D U=00000000

Total files: 1, Compiled OK: 1
```

If you get error messages from the compilation, double check your source file. Be sure to type it exactly as shown. If you are unable to get the compiler to work, double check your compilation environment. If you still have trouble, consider re-reading the installation instructions for your compiler (section 1, pages 1-1 through 1-9 for Lattice). An additional thing you might consider if you still can't get it to fly is to put the source file on a COPY of Lattice disk 1 and try it there after booting from that disk. The proper assignments are automatically made when you boot from Lattice disk 1. As a final resort, write to me care of *AmigaUser* describing your problem and I will do my best to help.

When you get the program successfully compiled, you are ready to link it. The linker supplied by Lattice is called BLINK. BLINK's job is to convert the object code file generated by the lc command above to an executable file (one that we can run on the Amiga). The output file from the computer (lc) was called hello.c (lc usually replaces the .c with .0 when it names the object file). This file (hello.o) is the input file for BLINK. It should exist in the same directory that you were in when you issued the lc command since, by default, that is where lc will create it. In order to execute the linker, type the following command:

```
blink lib:c.o+hello.o lib lib:lc.lib+lib:amiga.lib
```

After executing this command, you should get output that looks something like this:

```
Blink – Version 7.3
Copyright (C) 1986 The Software Distillery
Copyright (C) 1987 SAS Institute Inc. All Rights Reserved.

BLINK Complete – Maximum code size = 7612 ( ) bytes

Final output file size = 7504 ( ) bytes
```

If BLINK complains or gives other mysterious output, double check the syntax with which you invoked it.

YOU HAVE DONE IT!

If you now look in the directory you invoked BLINK in, you should have a new file named hello. This is an executable file! You can execute it by typing "hello" (without the quotes) at the CLI prompt. AmigaDOS will load and run your program. If you did everything right, you should see the words "Hello World" printed on your screen. Congratulations! You have just written, compiled, and linked your first C program on the Amiga. Regardless of how trivial the program may have been, you have learned the process by which a C program comes into existence. No matter how complex a C program you may write in the future, you will still have to go through the compilation and linking steps above.

Unfortunately, I am about out of space. I will provide an explanation of our little hello world program next month. In addition, I will give you some shortcut methods for combining some of the steps described above. In the meantime, once you get the program up and running, you may wish to take a look at some of the sample C programs that are supplied by Lattice. Also consider getting an introductory general purpose text on C such as "Programming in C" by Stephen Kochan, published by Hayden Books. You may even want to take some of the examples in a book like this, type them into your Amiga, and get them running. Until next month, enjoy your Amiga. □

AMIGA VIDEO

PRODUCTS GUIDE

A Listing of Hardware and Software

Compiled by Richard Herring

The Amiga's graphics are, in a word, breathtaking—in both their quality and their speed... The animation routines that are part of the Amiga's ROM form the basis for the most sophisticated color animation the personal computer market has ever seen.
August 1985, *Byte*

Compiling this guide turned out to be more work than we initially planned on. But that was a pleasant surprise because the extra work derived from the wealth of video software and hardware that some really enterprising and creative folks have developed for the Amiga market.

We had a bear of a time drawing the line on what's video-related and what's not. You may want to write a script for a video production, but we decided to leave out word processors. Likewise, developing a budget could be important, but spreadsheets seemed off course for this guide. An up-to-date listing of all your video files and projects may be a necessity, but we omitted coverage of databases.

Leaving out fonts and clip art was a much closer call. We collected so much information on these two accessories that our guide would have been overwhelmed. If readers show an interest, we'll be glad to publish that list in the future.

We've omitted some useful hardware from this guide too. As we looked at video production, we quickly determined that RAM expansion, accelerator boards, and hard disks would be high on the wish list of serious users. Likewise, we haven't tried to describe video recorders, cameras, or editing units because we wanted to include more than this one article in this issue.

Reviewing products which are not included in this guide, but would still be useful to video production with the Amiga, we learned one thing. Almost anything you can do with an Amiga (except for games) can be useful at some stage of developing videos. This machine stands out as incredibly well-suited to desktop video. It's THE desktop video machine. Spend what you want, you just can't accomplish all the Amiga's tricks with any other micro.

To compile this guide, we first listed all the Amiga video products we've come to know and love over the last few years. We found a good bit of information on many of them in back issues of *AmigaUser* and *Ahoy!* Then we checked press releases and new product announcements for anything that was due to be actually available at press time. Finally, we wrote to some 125 companies and asked them to verify the availability and pricing of the products we had listed and to tell us about any we had missed.

While most of these Amiga-related companies answered our basic questions, a few went above and beyond the call to help make this guide as good as it could be. We'd especially like to thank Frank Lazzarini at ACS *(Station Manager* series), Kristin Peterson at Broderbund *(Fantavision)*, Dale at Hash Enterprises *(Animation* series), the folks at MicroMagic *(Forms in Flight II)*, and Jim Bell at Professional Automation Resources *(Express Paint 2.0)*.

We hope you'll use this list over time. It can be a valuable shopping guide. We aren't able to spend enough time

V I D E O G U I D E

with every product to include ratings, but we have noted all the reviews contained in back issues of *AmigaUser* and *Ahoy!* And we'll give you a commitment right now to keep bringing you detailed reviews you can rely on.

You'll find products listed to help with every level of video production. Whether you want to flip through still images you've painted, move objects over backgrounds, rotate 3D objects, or computer-generate titles and graphics over a live video signal, you'll find the Amiga an indispensable assistant.

[We had hoped to track down a handful of additional products, but time ran out, as did possible addresses. These products included Edit Line (an automated decision list manager), medical diagnostic tools (from ADCA) which use

HARDWARE

DIGITIZERS

A digitizer will transform an image—of either a 2D picture or a 3D object—into a picture your Amiga can display. It starts with the analog signal from a video camera or VCR and converts it to digital. (In this sense, it performs somewhat like a scanner.) Working in tandem with the Amiga, a digitizer must map each pixel's location, hue, and luminance.

Digi-View 3.0 — **NewTek**
$199.95

The first Amiga digitizer. Monochrome digitization with RGB colorwheel produces 4096 colors. Use with your own video camera (B&W's okay). You select the number of colors. Supports dithering (rapidly varying color of a pixel to create the illusion of a different color), HAM images, overscan (maximum is 768 × 480), and extra halfbrite. New line-art mode has been added. Requires 5 seconds or more; composite color images take at least 15 seconds. (See full review in Aug. '88 *AmigaUser*, page 38.)

Digi-View Gold — **NewTek**
$199.95

Captures over 2 million colors in memory (using 21 bits per pixel) and displays 100,000 apparent colors on screen using advanced dithering routines. Software controls sharpness, overscan, extra halfbrite, etc.

Frame Capture (for Frame Buffer) — **Mimetics**
$199.95 for the 2000

With this option, you can digitize in real time from a TV camera or tape. This must be attached to Mimetics' *Frame Buffer.*

LIVE! — **A-Squared**
$295.00 for the 1000; also versions for the 2000 ($450) and 500 ($399)

Serves as a frame grabber, switcher, and generator for special effects like fades and strobes. Capture up to 15 images per second in B&W (16-level gray scale), 12 in color, and 4 in HAM from any video source, including cameras, VCRs, and TVs. Includes hardware documentation and programmer's examples. The Amiga 2000 board can get input from two video sources. Fast transfer through bus connection. Does not like to multitask. (See full review of 1000 version in Aug. '88 *AmigaUser*, p. 42; 2000 version in Feb. '89 *AmigaUser*, p. 55.)

FRAME BUFFERS

A frame buffer (or frame grabber) performs the same function as a digitizer, but works so fast that it can capture an image from a live display. It must be able to grab an image in 1/60 to 1/30 of a second. A standard TV (to which our VCRs and video cameras cater) displays 525 lines (a frame) every 2/60 (1/30) of a second by redrawing the 262½ odd lines (field) in the first 1/60 second and the even lines in the second 1/60. A frame buffer can convert and store one of these video frames from a live source to a digital computer image. Frame buffers capture up to 2 million colors. Due to the limitations of the Amiga's hardware, we can display only 4096 of these.

Frame Buffer — **Mimetics**
$549.95 for the 2000

An Amiga 2000 card capable of 746 × 484 resolution with over 2 million colors. Stores and displays a 4-field NTSC (an FCC standard for TV) overscanned image. Compatible with IFF, HAM, 24-bit RGB, and interlace. Use with files from popular paint and 3D programs. Use with a 500 or 1000 only if you have an expansion chassis.

FrameGrabber — **Progressive Peripherals**
$699.95

Digitize 4096-color HAM images from a TV, VCR, or camera. This real-time device grabs a B&W picture in 1/60 second and a color picture in 1/30. Has controls for hue, saturation, and intensity. Preview images before digitizing. Software handles time lapse animation, multiple exposures, and dithering. Easily switches one monitor between video and computer images. (See full review in Feb. '89 *AmigaUser*, p. 52.)

VD1 — **Impulse**
$499.95

A buffer and frame capture device. Works with NTSC video sources, full frame or single field.

A-Squared's *LIVE!* to do thermographics and infrared scanning, *The Demonstrator* (from Meridian software), which acts like an animation sequencer, a graphics design package from Unison World, and a drawing program *(Instant Artist)* from Polyvision Software.]

Products are divided into categories to the best of our ability. Many products fit well into several categories, so we've tried to list related categories next to each other. Products are arranged alphabetically in most categories. We've included a few products from the Amiga's early days—like Commodore's *Graphicraft*—that you won't find on many dealers' shelves. Still, these were often the only products some of us had in those first weeks of our love affair with the Amiga, and they deserve at least a passing thought.

COMBO DIGITIZERS AND FRAME BUFFERS

Perfect Vision — **SunRize**
$249.95

A digitizer and frame grabber with a 64K RAM buffer. Capture a picture from a VCR in as little as 1/60 to 1/30 second (in B&W). Capture color pictures using the three included color filters, which you must hold. Has brightness and contrast controls. Can be set to record a sequence of images (limited by RAM). Cannot grab color pictures in real time. Accepts video from many different sources, including live. Creates IFF images. (See full review in Aug. '88 *AmigaUser*, p. 40.)

Color Splitter for Perfect Vision — **SunRize**
$99.95

Takes the place of the RGB color filters so you can capture a picture from a VCR (an NTSC signal). Capture takes 1.5 seconds or more of a still image. Converts composite color to three monochrome signals.

GENLOCKS

Genlocks allow you to superimpose Amiga graphics over a video background from a camera or VCR. A genlock is a hardware device that synchronizes your Amiga's video output with an external video device—camera, tape, or TV. If you try to mix the two video signals without a genlock, you'll get an unstable picture. The genlock pulls the sync signal from the video device and locks the Amiga sync generator to it so both devices will start to scan the screen at the same time.

4004 (NTSC version) — **Magni**
$1695, or $1995 with optional control box
4005 (PAL version—Pal is the TV standard in Western Europe)
$1865, or $2165 with optional control box

Each version is a pair of Zorro-2 cards. One of the pair is a genlock/encoder with sync and blackburst generators and a system clock. The other is an interface card to grab Amiga graphics and send locking signals to the Amiga.

A1300 — **Commodore**
(No longer available)

The original (consumer) genlock from Commodore for the 1000. Well-known for comparatively marginal quality. Color is unstable and inaccurate. Use with a 2000 by elevating the computer. Use with a 500 by building an extension cable and, probably, buying a heavier power supply. (Commodore plans to release their A2300 genlock during 1989, but no release date has been set at press time. Retail price will be around $700.)

AmiGen — **Mimetics**
$179.95

Provides composite color output for the Amiga. Separate versions are available for NTSC and PAL. This low-cost, small unit cannot switch off overlay of graphics on video.

Gen/One — **Communications Specialties**
$895

This genlock does not distort the incoming video. It has front panel controls to adjust the computer's image over the video. Video input can be passed through to other equipment. Y/C outputs make it S-VHS compatible. It can output the video signal without the computer graphics overlay. It can show the video where color 0 appears or where any color except 0 appears.

GenKey — **Sci-Tech**
$749.95

This unit includes a genlock, keyer, and time-based corrector. The genlock lets you adjust subcarrier and horizontal phase relationships. The Amiga video signal can be adjusted by using the built-in processing amplifier. Switch between video sources without glitches. Has loop through for external video, RGB out, and composite video out.

ProGen — **Progressive Peripherals**
$449.95

A genlock for all Amigas. Meets RS-170A standards (video standards for synchronization of video signals and components). Software can display video or Amiga screen only and can control up to five video modes. Video shows through color 0, or through color 0 plus another color.

Neriki Image Master — **Compu_Art (or Neriki)**

Produces no reference video degradation. Exceeds the Amiga screen resolution with 520 lines vertically in NTSC and 600 in PAL. Has an adjustable luminance keyer and a chroma phase control. Optional chroma keyer and special effects gen- erator.

RM-2 — **Wollner (or Glennlock)**
$2995

A genlock and sync generator. Has adjustments for horizontal phase and phase carrier. Lets you control the video levels of graphics. Powerful system to drop text and graphic overlays on video images from cameras and other sources.

SuperGen — **Digital Creations**
$749.95

A genlock and overlay device that meets RS-170A standards. Has two independent fade controls (for video input and Amiga graphics) and an autofade option. Connectors include an RGB pass-through for the Amiga monitor, a loop-through video in, and two overlaid video outs. Notch filter eliminates chroma crosstalk. (PVS's *Pro Video Plus* can control the faders.)

COMBO DIGITIZERS, FRAMEBUFFERS, AND GENLOCKS

A2350 Professional Video Adapter — **Commodore**
(Not yet available at press time)

A combination genlock, real-time frame grabber, and digitizer for the Amiga 2000. Comes on two cards and occupies the video slot plus one other. Software lets you change palettes, video sources, contrast, and brightness.

Video Toaster — **NewTek**
$1500 (see below)

This is a combination genlock, digitizer, special effects generator, and frame grabber. Emulates a 2-channel ADO (Ampex Digital Opticals—a device for image transitions and video effects). Originally shown as an Amiga 2000 board, versions for the 500 and 1000 will bus-connect too. Dozens of special effects built in. Will require a time-base corrector to accept signals from consumer VCRs. (NewTek indicates that the product's list price may be lowered if the price of RAM comes down in the months ahead.)

RGB TO COMPOSITE

If you own an Amiga 500 or 2000, you can't connect directly to a composite monitor, TV, or VCR. Devices that convert your Amiga's RGB signal to composite can allow you to use non-Amiga monitors and to record animations directly to videotape.

A-Video — **Akron**
$49.95

Converts the RGB signal from an Amiga 500 or 2000 to a composite signal.

C-View I and C-View II — **C Ltd.**
$39.95

Version I provides separate chroma and luma signals so you can use a monitor like Commodore's 1702. Version II provides a composite color signal so you can use a VCR or composite monitor. Both plug into the Amiga RGB port but do not have a pass-through to allow you to keep your Amiga monitor hooked up.

ENC-1 — **Communications Specialties**
$395

An RGB encoder to convert the Amiga's RGB analog to a standard composite out.

V-I 500 and V-I 500RF — **Creative MicroSystems**
V-I 2000 and V-I 2000RF
$79.95, or $99.95 for RF versions

These video interfaces convert the Amiga's RGB output for use with composite monitors, VCRs, TVs (RF models), and the Commodore 1700, 1800, and 1900 series monitors. They provide color composite, chroma, and luma outputs. The RF versions also include RF modulator out and audio-in for RF.

GRAPHICS TABLETS / LIGHT PENS

A graphics tablet or light pen serves as an absolute positioning device. It is more natural for drawing than a relative positioning device like a mouse. A mouse has no physical boundard that locks it to the working area of the screen. Plus, the ball in a mouse develops its own momentum and can make exact positioning more difficult.

184-A Light Pen — **Inkwell**
$129.95

A two-button light pen that can replace, or be used in conjunction with, the mouse. The included driver works with most popular mouse-driven programs. Works with CLI or Workbench in interlace or non-interlace. (See full review in Feb. '89 *AmigaUser*, p. 41.)

AProDraw — **R&DL**
$449 for a 9 × 6" tablet
$549 for a 12 × 12" tablet

Includes a hi-res Summagraphics tablet, a two-button

stylus, power supply, software, and cables. Substitutes for the mouse using R&DL's proprietary driver.

Easyl — **Anakin (Canada) or Inforite (US)**
$499

A pressure sensitive drawing tablet. Draw or trace with a pen and paper right on the tablet. Works with most graphics software including 3D. Maximum resolution is 1024 × 1024, drawing area is 8.5 × 13 inches. Draws its power from your Amiga. Requires an interface card in the 2000 or an expansion bus for the 500 or 1000. Includes paint software that can keep up with its 250 points per second sampling rate.

IS/ONE — **Kurta**
$495 to $620 for 8.5 × 11" tablet
$615 to $740 for 12 × 12" tablet
$965 to $1090 for 12 × 17" tablet

A graphics tablet with a conversion rate of 10 to 100 X-Y coordinate pairs per second and a resolution up to 1016 points per inch. Includes a built-in menu strip. Optional cordless cursors and pens available. (We heard that Kurta was giving away a $150 cordless cursor device with each 12" tablet at the end of 1988.)

MISCELLANEOUS HARDWARE

Digi-Droid — **NewTek**
$79.95

Motorizes your *Digi-View's* color wheel so you can automate the R, G, and B shots. A necessity if you're working solo from across the room. The 10' ribbon cable attaches to the joystick port.

Imprint 3.0 — **American Liquid Light**
$495

Typically sold with a Polaroid Palette film recorder ($1995 extra). An interface to use the Amiga as an imaging system. Automated shots of one or a series of screens using an RGB color wheel. No screen curvature or video defects. Software allows control for film type and exposure. Allows double exposures that shift the picture vertically to fill raster lines.

A2024 Monitor — **Commodore**
Not yet available at press time; 1 meg required

Produces a 1008 × 800 display.

Viking 1 Monitor — **Moniterm**
$1995

A 19" monitor and an Amiga 2000 video display board. The monitor is gray-scale (four shades) and has square pixels. Maximum resolution is 1280 × 860. Actual resolution with most software will be 1008 × 800. Limits you to one sprite; does not allow double buffering in extended modes. (Will benefit from a 1 meg Agnus chip.) Check compatibility with your favorite software.

flickerFixer — **Microway**
$595

Video board for the A2000 video slot. Eliminates interlace flicker. Drives multiscan and VGA monitors.

DEST Scanner — **C Ltd.**
$1699 ($700 more for OCR capability)

Scans from 100 to 300 dots per inch. SCSI interface.

IMG Scan II — **Seymor-Radix**
$139.95

Converts your dot matrix printer into a scanner. Supports 256 shades of gray.

SpectraScan — **ASDG**
$995 for software and hardware interface
$6995 for color scanner

A color scanning system. Uses a Sharp JX-450 color scanner. Capable of 256 shades of gray and 16 million colors. Handle images up to 11 × 17 inches in resolutions of 30-300 dots per inch. Holds large images in a reasonable amount of memory.

AmigaLink & S-VHS Workstation — **RGB Video Creations**
$2500 for software, V-LAN hardware is extra, complete editing systems run up to $75,000

A plug-in interface board to connect an Amiga 2000 to a Video Local Area Network (VLAN). Connect and control up to 32 video-editing decks with your Amiga. Works with ½ inch, ¾ inch, and S-VHS. The Amiga acts like an editing console, controlling tape decks, special effects generators, and switches. Control stepframe animation. Lets you set up a series of fades, wipes, and edits from different video sources and preview in real time.

MediaPhile — **Interactive Microsystems**
$495

A media production, database, and automatic playback system that gives complete computer control over infrared-controlled video decks, camcorders, and laser and compact disk players. Includes an LED extension cable, two Sony S-port control cables, remote pause control cable, and two video deck counter inputs. Edit video tapes and add special effects. Record freeze-frame images or single-frame animation images. Supports Sony 8mm and Beta decks. Support for S-VHS and ¾ inch planned. Software includes a C programmer's toolkit and ARexx support to control any number of devices.

X-Specs 3D — **Haitex**
$124.95

LCD-shuttered goggles that alternately black each eye 30 times a second to alternate two slightly different pictures for a 3D effect (stereo vision). Package includes software demos and a game, but little information of use to programmers. Works only with specially designed software. (See full review in Dec. '88 *AmigaUser*, p. 52.)

SOFTWARE

2D PAINT PROGRAMS

Paint programs are a staple of Amiga video. You'll use these to create the backgrounds that will give life to many of your productions. You can also use them to quickly sketch out or explore new designs that you'll later do in 3D or animate.

Aegis Images — **Aegis**
$39.95

Includes lots of features and tools. Displays 4096 colors.

B-Paint — **Finally Technologies**
$39.95

Lets you draw in hi-res, medium-res, and lo-res. Includes source code.

Chroma Paint — **Designing Minds**
$49.95

A 2D paint program. Allows use of extra halfbrite.

Deluxe Paint II — **Electronic Arts**
$129.95; 512K required; 1.5K recommended

The original standard for paint programs. Allows 32 colors at a time and all modes except HAM. Allows images up to 1008 pixels square. Has over 90 features including anti-aliasing, perspective, and shadows. Easy to learn and use. (See full review in May '87 *Ahoy!*, p. 53.) Watch for version III with extra halfbrite, wrapping images around brushes, overscan, and animation features.

DeluxePhotoLab — **Electronic Arts**
$149.95; 1 meg required

Really three programs–Paint, Colors, and Posters. Paint works in all screen formats and supports HAM and extra halfbrite. Colors give detailed control over the colors in your graphics, will do color separations, B&W, or negatives, and lets you change display mode. Posters allows you to print any picture in sizes ranging from 1" to 10' square. (See full review in Jan. '89 *AmigaUser*, p. 55.)

Diamond — **Impulse**
$79.95

Supports HAM, overscan, and image processing.

Digi-Paint 2 — **NewTek**
$79.95; 512K required; 1 meg recommended

A paint program that supports HAM. Does dithered fills, lasso cut and paste, and colorizing of B&W. Effects include double, mirror, half size, blend, tint, smooth shading, rubthrough, and negative. Probably the standard for HAM paint programs. (See full review in March '88 *Ahoy!*, p. 53.)

Express Paint 3.0 — **Brown-Wagh (by PAR)**
$139.95

Allows 64-color painting using extra halfbrite. Import and merge IFF images. "Peel" images off page. Set default startup features. Nearly unlimited undo and a reverse "redo." Vertical page size limited by RAM; horizontal limit is 8192 pixels. Can have multiple brushes in memory and replace colors in a brush. Make a 2D brush into a 3D object. Print a portion of an image. Supports PostScript. Version 3.0 adds virtual pages, unlimited undos, 3D perspective, and other new features. (See full review of an earlier version in May '88 *AmigaUser*, p. 64.)

Express Tools for Express Paint — **Brown-Wagh (by PAR)**
$9.95 S&H for Express Paint owners

A package of utilities. Scroll IFF presentations vertically or horizontally. Control fade, time, speed, etc. Position, scale, and rotate multiple IFF images on a page. Convert HAM to 2 to 64 colors. Convert any screen image to an IFF file.

Graphicraft — **Commodore**
$49.95

A 2D paint program.

The Graphics Studio — **Accolade**
$49.95; 512K required.

Has all the standard painting tools and features like flip, rotate, drop shadows, and zoom. Supports lo-res and hi-res, but not HAM. Includes slideshow. Five default fill patterns you can edit, or make your own. 32 colors at a time. Works with page larger than the screen, fast scrolls. (See full review in Aug. '88 *AmigaUser*, p. 54.)

Photo Paint 2.0 — **MicroIllusions**
$99.95; 512K required, 1 meg recommended

Supports HAM and is compatible with other HAM software. Lets you convert your IFF images to HAM. Brushes can be tilted, rotated, resized, and mapped to a 3D object. Specify light source, intensity, and shading. Can change palette without affecting colors on screen. No spray gun or fill pattern. Supports PAL, NTSC, and overscan. Version 2.0 improvements include rub-through, brush patterns, new drawing modes, stencil, adjustable-spray air brush, and ColorFont support. (See full review in Aug. '88 *AmigaUser*, p. 48.)

Prism Plus with Prism — **Impulse**
$69.95

A HAM editor. Allow two 4096-color images up to 1024 pixels square. *Prism Plus* requires 1 meg; *Prism* works in 512K.

Professional Draw — **Gold Disk**
$199.95

A drawing program that focuses on smooth curves even with enlargements. Has mouse-controlled rotation, scaling, shearing, and distortion. Built-in color separator supports printed output.

3D RENDERING PROGRAMS – 3D OBJECT EDITORS

Creating 3D objects is critical to many applications. Study TV election coverage, sports, or commercials, and you'll see increasing use of 3D. The uses of 3D in the scientific and educational environments are really just beginning to be explored.

3-Demon — **Mimetics**
$99.95; 1 meg required

Allows you to create and manipulate solid 3D objects in a single window, seeing the object as you build it. You can read, write, translate, and modify objects from other 3D programs. Supports sub-objects. Object size is limited only by memory, with no limit on the number of surfaces. Has some interesting viewing options like fisheye and fly-around.

C-Light — **R. Peterson**
$49; 512K required

A modular program that lets you create objects from spheres, cylinders, and cubes, and do ray tracing. Allows four colors with shading. Scenes can have 170 objects and 170 light sources. Supports NTSC, PAL, and overscan.

Modeler 3D — **Aegis**
$99.95

3D object generation program for *Videoscape 3D* animations with many features. Also works with *Sculpt 3D*. Uses standard three-window view (front, top, side) plus perspective (isometric) preview and can work with X-Y-Z coordinates. Supports 68020 and 68881 and PAL. Lets you work with eight layers of an object.

Opticks — **Incognito Software**
$99.95

Does 3D rendering. Has stereo pair capability to support *X-Specs 3D*. Includes a perspective view, surface mapping, and various types of lighting. Lets you import objects from *VideoScape 3D* and *3-Demon*.

PageRender 3-D — **Mindware**
$159.95

A 3D rendering program that supports stereo vision, any number of bit planes, control over motion, automatic light source repositioning, and more. Includes stereovision glasses. Supports *X-Specs 3D* and images larger than screen.

Sculpt 3-D — **Byte By Byte**
$99.95; 512K required, 1 meg recommended

Creates and edits solid 3D objects. Uses front, top, and side views while you create. Use any of the standard shapes or spin an object from any curved line. Build with slices. Position objects, lighting, and observer. Produces ray-traced pictures. Spin, rotate, and extrude 2D to 3D. Effects include shadows, reflections, and smooth shading. Supports overscan. (See full review in Nov. '87 *Ahoy!*, p. 57.)

2D ANIMATION PROGRAMS

Animation programs—whether they work with 2D or solid objects—bring life to your Amiga screen. We associate motion with both plant and animal life, so motion onscreen lends something to our productions that still pictures, no matter how artistic, cannot.

Aegis Animator — **Aegis**
$99.95

Does polymorphic animation. Aegis Images included.

Animator Jr. — **Hash**
$79.95

Use to assemble animations.

DeluxeProductions — **Electronic Arts**
$199.95; 1 meg required, 1.5 recommended

Does double-buffered 2D animations, in 16 color hi-res, of objects across painted backgrounds. Includes fonts and artwork. Each scene can have up to five objects, and each object's path can have ten points (movement between points is straight line). Provides over 40

screen effects—blinds, scatter, spiral—for both objects and backgrounds. Cannot be used to create images. No sound or HAM. Supports color cycling, genlock, and overscan.

Deluxe Video 1.2 — **Electronic Arts**
$129.95; 512K required, 1 meg and 2nd drive recommended

Does animation and titling. Supports music in animations, rolling credits, and special effects. The "post production kit" lets you automate the creation of scenes. Does flashy openings, titles, and wipes.

Fantavision — **Broderbund**
$59.95

A 2D, object-oriented animation program. Can automatically generate up to 128 frames in between the ones you design. Objects are built from points, with points per object and objects per screen limited by RAM and screen resolution. Includes object-oriented drawing tools. Allows 32 colors at a time. Use any IFF picture as a background or object (manipulation of such objects is limited). Use LIVE! images as background. Supports synchronized soundtracks.

Zoetrope: The Animation System — **Antic**
$139.95; 1 meg required

Move or rotate objects through 3D space. Handles cell animation. Supports composite overlay and underlay of pictures and animations. Includes drawing tools and can import IFF files and brushes. Supports 32 × 200 lo-res. Does not support ANIM format.

SOLID OBJECT ANIMATION PROGRAMS

3-Tupla — **Mitchell Ware Systems**
$299.95

Produces 3D animations. Allows creation of 3D objects.

Animate 3-D — **Byte By Byte**
$149.95

Produces ray-traced animations with objects produced by *Sculpt 3D* or by this package. Moves objects, lights, and camera. You control rotation, timing, etc. with a script or through the graphical interface. Use IFF images as foregrounds or backgrounds to objects. Link objects for complex motion. Wireframe preview. Store compressed animations, control single-frame VCR, and render images to frame buffer. Supports overscan and genlock.

Animation: Apprentice 3.2 — **Hash**
$299.95; 1 meg required

Produces 3D character animations with shading and highlights. Combine front and side views to create 3D objects. Design motions and save them into libraries. Surface map any IFF picture onto your objects. Supports multiple characters, keyframing, lip sync, HAM, genlock, and overscan. Move an object and its attached parts follow (move the legs and the torso, head, and arms will come along).

Caligari — **Octree**
$1995 ($18 for a demo); 1 meg required

A script-based modeling system for 3D animation and fast rendering. Build objects using wireframe representations in 3D, not using three views. To do animations, you must have a VTR and a single-frame controller. Includes a library of objects and primitives.

Forms In Flight II — **Micro Magic**
$119; 1 meg required

A 3D graphics/3D modeling/animation package. Create 2D and 3D objects. Pan, magnify, and shade. Produces curved (not faceted) 3D surfaces and Phong (smooth) shading. Maps IFF images onto curved 3D surfaces of any image. Does not use scripts. Real-time playback with overscan. Animation tools can define complex motions.

Sculpt-Animate 4D — **Byte By Byte**
$499.95

The next step up from *Sculpt 3D* and *Animate 3D* for professional animations. Among many other features, supports ray-traced and scanline animations and boolean operations on objects.

Turbo Silver 3.0 — **Impulse**
$199

Animate by connecting frames or by specifying object paths. Assemble up to 999 frames into an animation. Can import brushes from a paint program and map brushes onto objects. Enhances speed and features of prior version. Can be used to create objects. Uses only one requestor for all camera settings and one for all global settings. Supports 68020 and 68030.

Video Effects 3D — **InnoVision**
$199; 1 meg and 2 drives required

Produces 3D animations, titles, and effects at 60 frames per second. Lets you do spins, twists, zooms, and tumbles. Stores 20 seconds of animation on a floppy. Has perspective drawing and many effects like drop shadows and extruded (3D) logos. Works in hi-res with up to eight colors per screen.

VideoScape 3D 2.0 — **Aegis**
$199.95

A 3D animation and solid modeling program. Scripts control lights, camera, and objects. Supports overscan and genlock. Adds many features to the original, including HAM, extra halfbrite, new surfaces like transparent and chrome, Phong shading, severe overscan, PAL, and object tracking.

ANIMATION SEQUENCERS

Animation sequencers range from slideshow programs that merely display one IFF image after another to sophisticated animation programs with loads of features. This category overlaps heavily with the previous two.

Animation:Flipper — **Hash**
$59.95; 1 meg and 2 drives required

Preview—or "penciltest"—cell animations. Packs any series of pictures together on a disk, then plays them as an animated sequence. You control playback rate and direction. Store animations in ANIM or HASH formats.

Animotion — **Finally Technologies**
$99.95

A cell animator.

The Director — **Right Answers Group**
$69.95

A script-based animation language. If you've seen "The Probe Sequence," you've seen this program in action. Supports full or partial page-flipping/cell animation, fades, wipes, dissolves, color-cycling, etc. Can preload images to extent of RAM, and synchronize sounds with visual sequences. Has over 80 commands, similar to BASIC. Can accept user input while displaying animation.

Toolkit for The Director — **Right Answers Group**
$39.95

Includes more wipes, screen saves, ANIM compressor, and several improved functions.

Lights! Camera! Action! — **Aegis**
$79.95; 1 meg and 2 drives required

Make desktop slideshow presentations from pictures, animations, sampled sounds, and music. Uses IFF images, including HAM, ANIM animations, Sonix musical scores, and IFF sampled sounds. Has over 40 transitions and effects. Supports all screen resolutions, genlock, and PAL. (See full review in Dec. '88 *AmigaUser,* p. 48.)

MovieSetter — **Gold Disk**
$99.95; 1 meg required

An animation package with which you can create action sequences accompanied by stereo sound. Use the included movie clip files or create or import your own 32-color images. Supports overscan, up to 60 frames per second, color cycling, and special effects. (See full review in March '89 *AmigaUser,* p. 59.)

PageFlipper — **Mindware**
$29.95

Makes animations from IFF pictures at 30 frames per second. Uses all RAM up to 8 megs. Supports overscan.

PageFlipper Plus F/X — **Mindware**
$159.95; 512K required, 2 drives recommended

A 2D cell animation editor. Smooth, fast animations, from scripts, of any IFF image. Use with PageRender 3D for 3D animations. Compresses animations. Allows editing of backgrounds. Comes with 76 built-in transitions—blinds, wipes, fades—and lets you design your own. Run separate animations concurrently in different bit planes.

Photon Video: Cel Animator — **MicroIllusions**
$149.95; 512K required

Use to create animations. Each frame is numbered and has its own palette and sounds. Lets you preview animation and specify order of frames, timing, speed, and delay. Includes a pencil test option with B&W video.

The Talking Animator — **JMH**
$49.95

Does animations with page flipping. Supports speech.

TV*Show — **Brown-Wagh (Zuma Group)**
$99.95

A script editor and player. Script length limited only by RAM. Combine title and picture screens and brushes built with other software into shows. Over 50 transitions, including rolls, wipes, splits, and spirals. Review any part of a script. Incorporate speech. Merge scripts. Won't use ANIM files or sampled sounds. User can have some control over presentations.

V.I.V.A. Presents — **Knowledgeware**
$250

Build interactive presentations and slideshows. Useful for computer-aided instruction or training.

SPECIAL EFFECTS GENERATORS

Animation:Effects — **Hash**
$49.95; 1 meg required

Add special effects to your animations. Uses any resolution IFF image. Supports genlock and overscan. Scripts allow complex object movements. Consists of three programs—Wipe, Scroll, and Flip. One of a series that includes *Animation: Stand* (listed next) and *Animation: Multiplane* (February '89 *AmigaUser,* p. 23).

Animation:Stand — **Hash**
$49.95; 1 meg and 2 drives required

Simulates camera moves in traditional animations. Lets you pan across scene, fade, and zoom in on a feature (interpolates to avoid jaggies). Preview, add, delete, or list keyframes and auto-generate "in-between" frames. Generates overscanned, 4096 color, real-time playback disk files. Accepts input pictures in any reso-

lution, including HAM, interlace, and overscan. Plays 30 to 60 frames a second. (See full review in Aug. '88 *AmigaUser*, p. 60.)

Invision — **Elan Design**
$129; 512K and 2 drives required

Works with LIVE! digitizer to capture moving images in real time. Includes effects such as mirroring, mosaic, freeze frame, and strobe. Use with imported pictures. Mix moving and still shots. (See full review in Feb. '89 *AmigaUser*, p. 57.)

CHARACTER GENERATORS

Character generators are used for titling and credits. They emphasize the professional quality of your work. Using a genlock, you can overlay titles on a video image. Otherwise, you'll have to electronically "splice" your titles in. These programs can create stunning effects for use in videos and slideshows. Many home video buffs will be familiar with hardware character generators that accomplish much the same thing, though often with less flexibility.

Broadcast Titler — **InnoVision**
$299.95; 1.5 megs required

A character generator. Works with standard Amiga fonts and with ColorFonts. Has an effective resolution of 2160 × 1440 to eliminate jaggies. Allows the use of 320 hi-res colors per page. Over 100 page and line transitions. Can handle up to 1000 pages of stored text and graphics.

Easy Titler — **JMH Software**
$49.95

A character generator with 3-color script, block, and bold block type. Supports only a few transitions. Build slideshows with up to 16 screens.

Pro Video CGI — **PVS Publishing**
$199.95

A character generator with many video effects, including shadows, flash, sequence, pulls, checkerboards, crawls, and grid. Uses only hi-res mode. Has nine resident fonts and thirteen drop shadows. PAL version available.

Pro Video Plus — **PVS Publishing**
$299.95; 1 meg required

Not an upgrade to Pro Video CGI (above), but a more advanced program. Includes 90 transitions and advanced professional features. Has seven more fonts and graphics. Allows the use of IFF images for creating backgrounds.

Station Manager Character Generator — **ACS**
$295; 1 meg required

A versatile character generating system. Not only supports an unlimited number of commercial and public domain fonts, but also creates 'scrawl files that can be used to replace clips inside *Deluxe Productions*. Fully mouse driven, it provides features not found elsewhere.

TV*Text — **Brown-Wagh (Zuma Group)**
$99.95; 512K required, 1 meg and 2nd drive recommended

A character generator that uses any Amiga font and includes shadows, strobes, 3D extrusion, background patterns, rotation, etc. Has nine fonts. You design titles and program can find fonts to fit area. Backgrounds include grid, tile, and wallpaper. Has simple drawing tools, undo, and resize. Load IFF files as backgrounds or overlays. Supports 640 × 200, 640 × 400, and overscan, but no more than eight colors.

VideoTitler 1.1 — **Aegis**
$149.95; 512K required, 1 meg and 2 drives recommended

Create elaborate titles and use IFF pictures as backgrounds. Includes 20 font styles, such as embossed and 3D, that you can use or customize. Can use its own special format PolyFonts (five included), which can be spaced, twisted, and stretched. Up to 32 colors, or 64 with extra halfbrite. Will not import HAM-IFF pictures. Supports overscan. Includes VideoSeg for slideshow presentations (over 50 transitions available); can incorporate *VideoTitler* screens and IFF frames into animations. (See full review in Aug. '88 *AmigaUser*, p. 58.)

FONT EDITORS

Workbench fonts just don't make it for video presentations. They are designed for screen displays of text. For video, you need fonts that are big, and 3D, and colored, and textured.

AmigaMetaFont — **Radical Eye**
$75

Create new fonts and edit existing fonts.

Calligrapher — **InterActive Softworks**
$129.95; 512K required, 1 meg recommended

Edit fonts or create new ones. Work with regular fonts or ColorFonts with up to 16 colors and patterns. Map an IFF picture onto a font. An included utility, ColorText, allows many other programs to use your ColorFonts. You could use this program to convert fonts from other computers. (See full review in May '88 *AmigaUser*, p. 79.)

Interfont (with Interchange) **Syndesis**
$119.95 ($79.95 upgrade for Interchange owners)
Design custom fonts for use with various 3D animation programs. Create 3D objects from fonts. Supports *Sculpt 3D* and *Videoscape 3D.* Additional $19.95 module for Turbo Silver and Forms in Flight II.

GRAPHICS MANIPULATION UTILITIES

If you work with more than two or three of the programs above, you may find that these utilities can save you a migraine or two.

Butcher 2.0 **Eagle Tree**
$37; 512K required, 1 meg recommended
A utility program. Manipulate and enhance IFF images created with other packages. Automatically changes to the resolution of a picture you load. Load three palettes at once. Makes hi-res or lo-res images from your HAM pictures. Features include pixel counting, edge detection, horizontal and vertical flip, and tiled mosaics. Add, delete, and swap bit planes. Uses blitter for speed. (See full review in Sept. '87 *Ahoy!*, p. 57.)

Interchange **Syndesis**
$49.95
Use to convert the formats (including color and texture) of 3D images so you can move among the popular (incompatible) programs. Works with *Sculpt 3D* and *VideoScape 3D.* Separate $19.95 modules are required for *Turbo Silver* and *Forms in Flight.* Just select two program modules and a file, then click on convert.

PIXmate **Progressive Peripherals**
$69.95
An image processing system that performs over 3000 special effects. Converts to and from all Amiga graphics modes and resolution. You can resize and merge graphics and reduce the number of colors in an image. Lo-res in 32 or 64 (extra halfbrite) colors. Will color cycle, has undo. Lets you clip and flip between two screens or combine them.

MISCELLANEOUS SOFTWARE

We apologize for not doing a better job of fitting these into the categories above. In some cases, they refused to fit; in other cases, we just couldn't decide.

Aegis Impact! **Aegis**
$89.95; 512K required, 1 meg recommended
Prepare presentation graphics of data, intended for business settings. Design screen displays with complicated graphics and text overlays. Includes a slideshow program. (See full review in March '87 *Ahoy!*, p. 60.)

Animation:Editor **Hash**
$59.95
Combine and edit animations from different software packages. Convert resolutions and colors. Extract single frames from, and insert single frames into, packed animations.

Animation:Multiplane **Hash**
$89.95; 1 meg required
Use with animations built with other programs to move foreground and background planes above/below each other. Includes dissolves, transparency, strobing, drop shadows, pixelation, etc.

Animation:Rotoscope **Hash**
$79.95
Edit single frames.

ComicSetter **Gold Disk**
$99.95
Create multiple pages with multiple panels. Maximum page size is 1008 × 1008 pixels. Create images by layering objects in panels. (See full review in Jan. '89 *AmigaUser,* p. 48.)

D-Buddy **Digital Creations**
$79.95
Utilities for IFF images produced with paint programs.

Deluxe Help **RGB Video Creations**
$44.95 for Calligrapher; 1 meg and 2 drives required
$34.95 for Deluxe Paint II; 512K and 2 drives required
$34.95 for Digi-Paint; 1 meg and 2 drives required
$34.95 for Photon Paint; 1 meg and 2 drives required
$34.95 for PageSetter; 1 meg required, 2 drives recommended
You can flip between the actual program and these help screens. Starts with the basics and continues through more sophisticated features. The talking mouse pointer is slick. (See full review in Dec. '88 *AmigaUser,* p. 56.)

Doug's Color Commander **Seven Seas**
$29.95
Multitask this program, then pop up its color gadget whenever you need to manipulate the palette. Control RGB values, hue and saturation, and contrast. Store palettes or move them among pictures.

Edit Decision List Processor **MicroIllusions**
Use to build edit lists.

Elan Performer **Elan Design**
$49

Display IFF images, created with other software, interactively.

Grabbit **Discovery**
$29.95

Freeze an Amiga image and save it to disk. Supports color printers. Works with running animations. Stores images in IFF format. Requires 10K to reside in your Amiga.

LightBox **R&DL**

Still in the works at press time, this will be a drawing tool for animators that supports traditional drawing techniques.

The Mandala **Very Vivid**
c. $400

Lets a person on camera "point" to correspond to a position on screen. Use to play onscreen "musical instruments" or otherwise control and interact with the Amiga. Requires A-Squared's *LIVE!* digitizer.

MicroFiche Filer Plus **Software Visions**
$179

A database program based on a microfiche metaphor. Supports ARexx, macros, and calculations. Handles IFF brushes and images, as well as overscan and HAM. The less powerful *MicroFiche Filer* is $99. Either can be used to storyboard a video production. (See full review in March '89 *AmigaUser,* p. 56.)

Photon Video: Transport Controller **MicroIllusions**
$299.95

Use a single-frame video controller (five supported) and this package to sequence smooth animations. Set the program to record up to 300,000 frames for any image. Includes a time-lapse module and an editor. Designed to multitask with *Photon Video: Cel Animator.*

PhotoSynthesis **Escape Sequence**
$149.95; 1 meg and 2 drives required, 2 megs recommended

A full image processing system. Includes over 40 operations. Supports four 320 × 200 depth 16 images. Includes a script interpreter and an interactive color-

ETC.

BOOKS, TAPES, AND A MAGAZINE

We hope this guide will help, but true expertise with Amiga video may require just a bit more. We've listed some books, VHS instructional tapes, and even another magazine that may help.

***Amiga 3-D Graphics Programming in BASIC*, Abacus, $19.95**

Describes IFF format, 3D algorithms, ray tracing, and shading.

Myers, *Amiga User's Guide to Graphics, Sound and Telecommunications*, Bantam, 1987, 239 pages, $18.95.

HAM mode is described in the graphics chapter. BASIC is used in the discussion of animation.

Guzelimian, Kuhnert, and Rozells, *Becoming an Amiga Artist, An Illustrated Guide to Amiga Graphics, Sound, and Animation*, Scott, Foresman & Co., 1987, 239 pages, $19.95.

Gives instructions on using several of the more popular commercial graphics programs. Then it discusses how to use BASIC for graphics, sound, speech, and animation and how to transfer screen images to paper, film, and videotape. The emphasis is somewhat toward business graphics.

Costello and Katz, *Breaking Into Video*, Simon & Schuster, 1985, 180 pages, $7.95.

Describes the video industry, especially how and where to get jobs. The only mention that's made of computers concerns graphic artists, not micros. Describes production companies, facilities, broadcast TV, cable, and home video.

Speed, *Desktop Video: A Guide to Personal and Small Business Video Production*, Harcourt Brace Jovanovich, 1988, 276 pages, $14.95.

Describes computer hardware and software (focusing on the Amiga), video equipment, and audio gear. Tells how to plan, shoot, and edit a video, and provides examples.

Leemon, *Inside Amiga Graphics*, COMPUTE! Publications, 1986, 303 pages, $17.95.

Essentially a tutorial, with lots of examples in BASIC and C, for intermediate level programmers. Learn about the copper, the blitter, and software library functions, as well as how to use sprites and BOBs. Describes how to build a graphics system. The last 30 pages is a summary of 71 functions, most from the graphics and intuition libraries.

Brand, *The Media Lab: Inventing the Future at MIT*, Viking, 1987, 285 pages.

As society moves from the industrial into the informational age, this program at MIT seeks to explore the overlap among the broadcast and motion picture industry, and print and publishing industry, and the computer industry. Not an Amiga book, but you'll get a glimpse of the future.

map editor.

Professional Color Separation Module **Gold Disk**
$199.95

Divides images into the four colors offset printers use to produce full-color pictures.

Station Manager Map Generator **ACS**
$145; 1 meg required

A high-speed cartography program designed to plot a high-resolution map of anywhere in the world in just seconds. The unique graphical user interface makes selection of the map easy.

Station Manager Tape Editor **ACS**
$995; 1 meg required

Perform video editing, from simple cuts to A/B roll. This package provides control of up to 32 video devices in the form of VHS, Super-VHS, Betacam, or 1-inch VTR's (or any mix of formats), within its "Video Network." All editing and control is performed using the Amiga's software interface. Provisions for automated single-frame, time-lapse, script recordings, and edit decision list processing are also included.

Station Manager Teleprompter **ACS**
$295; 1 meg required

A reliable teleprompting system for any TV station, business, or post-production house. Eliminates the need for the expensive papers most teleprompters require.

Station Manager Time & Scheduling **ACS**
$295; 1 meg required

Accurate to the second, this program does your on-air program scheduling after everything has been created, animated, edited, and is ready to go.

Station Manager Weather-Link **ACS**
$295; 1 meg required

Provides weather graphics downloading capability for *Station Manager.* (Uses *Accu-Graphics* by Accu-Weather, Inc.)

WindowPrint II **Computer Toolsmith**
$34.95

Dumps Amiga screens.

Friedhuber, *Professional Results with Deluxe Paint II*, Verlag, 2nd edition, 400 pages.

Covers everything from basic drawing to advanced techniques.

Whitaker and Halas, *Timing for Animation*, Focal Press, 1981, 144 pages, $37.95.

If you dream anims, this book makes perfect bedtime reading.

Sippl and Dahl, *Video/Computers: How to Select, Mix, and Operate Personal Computers and Home Video Systems*, Prentice-Hall, 1981, 250 pages, $7.95.

Contains clear descriptions of technical material, but watch the publication date—64K was a lot back then. Predicts "integration" of video and computer systems in our homes by 1990 using IVTs—integrated video terminals. Describes the problems of connecting digital computers to analog video hardware.

"How To Use The Amiga For Video Productions," TV One, $39.95.

A VHS tape that describes hooking up the system, using a genlock, and running software.

"Video Guide to Deluxe Paint II," EA, $19.95.

A 30 minute VHS tape. Learn about color palettes, gradient fills, perspective, etc. A professional artist demonstrates things like creating a palette with 256 colors.

"Videomaker: The Video Camera User's Magazine," Videomaker, $1.95.

Reviews lots of video hardware. Features focus on video skills and equipment. Common mention of the C-64/128 and Amiga. (You'll even see Amiga 500 video ads here.) Lists video user groups. Published six times a year.

VIDEO CONTESTS

We're more than happy to review the images you create. You see the ones we like best each month in our *Art Gallery.* Unfortunately, these pages don't do justice to videos. Still, recognition and public acclaim are possible.

***AmigaUser* Art Gallery**

A monthly competition right in these pages. About a half dozen reader-submitted images are printed each month. Earn fame and fortune. Er, well, at least fame and a free one-year subscription to *AmigaUser* if your picture is published. Not a contest.

First Annual AmiEXPO Art and Video Cointest

To be judged at AmiEXPO New York, on March 3-5, 1989. Contest categories are: 2D image, 3D image, digitized image, animation, and mixed media video. Grand prizes include *AProDraw*, CSA *Accelerator*, *Perfect Vision*, Supra hard disk, *LIVE!*, and *Invision*.

Second Annual Aegis Desktop Video Contest

Ran through September 1, 1988. Requires you to use an Amiga and one or more Aegis products. 1987 winners were "So What's the Big Deal?" and "Dance of the Stumblers." Categories for amateurs and professionals. The awards ceremony took place at the winter Comdex in Las Vegas in November 1988.

SERVICE BUREAUS

Service bureaus solve the heartache of preparing your own 35mm slides and transparencies from Amiga video images. They also save you the cost of investing in the hardware necessary to achieve professional results. Some can also produce color hard copy, video, and B&W laser prints.

Consider service bureaus to be like hiring a professional to complete one step of the project. In addition to the ones listed here, you'll want to check your yellow pages. A local bureau may save you time and be easier to get to know. You'll want to check that any service bureau supports the software you used to produce your image or video. They may also provide custom services, like design, editing, or cleanup, and allow you to transmit files by modem.

CV Designs

A video and slide transfer service. Can provide custom art and animation.

Hammond Photographic Services

Produces 35mm slides, without distortion or curvature, from Amiga IFF or HAM images. First slides cost $4 to $20, depending on the number done at one time. Copies after the first are $1 each. Hammond can provide a guideline for the production of images intended for slide transfer.

Philadelphia Video Lab

Specializes in high quality transparencies and prints of Amiga screens. Also transfer Amiga animations to VCR tape format. Will soon introduce two new software packages: PVL Cal and PVL ProCal, for properly calibrating the Amiga's color output to whatever monitor is in use.

Slide City

Produces 35mm slides from any Amiga Graphic, including IFF, HAM, and extra halfbrite. Typically has a 24-hour turn around time. Costs $3 per slide per screen (two minimum). Offers a discount for 25 or more slides.

Vellum

Produces 35mm slides, 4 × 5 transparencies, and high-quality B&W prints. Can do color dot matrix proofs.

Alphabetical Index of Products

Alphabetical Index of Company Addresses

A-Squared Distributions
6114 La Salle Ave., Suite 326
Oakland, CA 94611
Phone: 415-339-0339

Abacus
5370 52nd Street SE
Grand Rapids, MI 49508
Phone: 616-698-0330

Accolade
550 South Winchester Blvd.
San Jose, CA 95128
Phone: 408-296-8400 or 408-985-1700

ACDA Corp.
220 Belle Meade Avenue
Setauket, NY 11733
Phone: 516-689-7722

ACS (Associated Computer Services)
2135 East Sunshine, Suite 106
Springfield, MO 65804
Phone: 417-887-9923

Aegis Development
2115 Pico Blvd.
Santa Monica, CA 90405
Phone: 213-392-9972 or 800-345-9871

Akron Systems Development
P.O. Box 6408
Beaumont, TX 77705
Phone: 409-833-2686

American Liquid Light
2301 W. 205th Street
Suite 106
Torrance, CA 90501
Phone: 213-618-0274

AmiEXPO
211 East 43rd St., Suite 301
New York, NY 10017
Phone: 212-867-4663

AmigaUser
Art Gallery
45 West 34th Street
Suite 500
New York, NY 10001
Phone: 212-239-0855

Anakin Research Inc.
100 Westmore Drive, Unit 11C
Rexdale, Ontario
Canada M9V 5C3
Phone: 416-744-4246

Antic Software
544 Second Street
San Francisco, CA 94107
Phone: 415-957-0886

ASDG
925 Stewart Street
Madison, WI 53713
Phone: 608-273-6585

Bantam
666 Fifth Avenue
New York, NY 10020
Phone: 800-223-5780

Broderbund Software, Inc.
17 Paul Drive
San Rafael, CA 94903-2101
Phone: 800-527-6263 or 415-479-3500

Brown-Wagh Publishing
16795 Lark Avenue, Suite 210
Los Gatos, CA 95030
Phone: 408-395-3838

Byte By Byte
Arboretum Plaza II
9442 Capitol of Texas Highway N, Suite 150
Austin, TX 78759
Phone: 512-343-4357

C Ltd.
723 East Skinner
Wichita, KS 67211
Phone: 316-267-3807

Commodore
1200 Wilson Drive
West Chester, PA 19380
Phone: 215-431-9100

Communications Specialties
6090 Jericho Turnpike
Commack, NY 11725
Phone: 516-499-0907

Compu_Art
P.O. Box 712
Victoria Station, Montreal
Quebec, Canada H3Z 2V8
Phone: 514-483-2080

COMPUTE! Publications
825 Seventh Avenue
New York, NY 10019
Phone: 212-315-1665

Computer Toolsmith
T & L Products
2645 Wilson Street
Carlsbad, CA 92008
Phone: 619-729-4020

Creative MicroSystems, Inc.
10110 SW Nimbus B-1
Portland, OR 97223
Phone: 503-684-9300

CV Designs
61 Clewley Road
Medford, MA 02155
Phone: 617-396-8354

Designing Minds, Inc.
3006 North Main
Logan, UT 84321
Phone: 801-752-2500

Digital Creations
2865 Sunrise Blvd., Suite 103
Rancho Cordova, CA 95670
Phone: 916-344-4825

Discovery Software
163 Conduit Street
Annapolis, MD 21401
Phone: 301-268-9877

Eagle Tree Software
P.O. Box 164
Hopewell, VA 23860
Phone: 804-452-0623

Elan Design
P.O. Box 31725
San Francisco, CA 94131
Phone: 415-621-8673

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Phone: 800-245-4525 or 415-571-7171

Escape Sequence, Inc.
P.O. Box 1101
Troy, NY 12180
Phone: 518-274-1547

Continued on following page

Alphabetical Index of Company Addresses

Continued from previous page

Finally Technologies
25 Van Ness Avenue
San Francisco, CA 94102
Phone: 415-564-5903

Focal Press
80 Montvale Ave.
Stoneham, MA 02180
Phone: 800-544-1013

GlennLock
3903 Carolyn Avenue
Fairfax, VA 22031
Phone: 701-273-5663

Gold Disk
2179 Dunwin Drive #6
Mississauga, Ontario
Canada L5L 1X2
Phone: 416-828-0913 or 800-387-8192

Haitex Resources, Inc.
208 Carrollton Park, Suite 1207
Carrollton, TX 75006
Phone: 214-241-8030

Hammond Photographic Services
11280 Washington Place
Culver City, CA 90230
Phone: 213-390-3010

Harcourt Brace Jovanovich
H.B.J. Building
Orlando, FL 32887
Phone: 407-345-2000

Hash Enterprises
2800 E. Evergreen Blvd.
Vancouver, WA 98661
Phone: 206-693-7443

Impulse Inc.
6860 Shingle Creek Pkwy. #112
Minneapolis, MN 55430
Phone: 612-566-0221 or 800-328-0184

Incognito Software
34518 Warren, Suite 149
Westland, MI 48185
Phone: 313-462-2148

Inforite Corp.
1670 S. Amplett Blvd., #210
San Mateo, CA 94402
Phone: 415-571-7547

Inkwell Systems
5710 Ruffin Road
San Diego, CA 92123-1013
Phone: 619-268-8792

InnoVision Technology
P.O. Box 743
Hatword, CA 94543
Phone: 415-538-8355

Interactive Microsystems
80 Merrimac St., P.O. Box 1446
Haverhill, MA 01831
Phone: 508-372-0400

Interactive Softworks
2521 South Vista Way, Ste. 254
Carlsbad, CA 92008
Phone: 619-434-5327

JMH Software
7200 Hemlock Lane
Maple Grove, MN 55369
Phone: 612-424-5464

Knowledgeware
P.O. Box 2292
Paso Robles, CA 93447
Phone: 805-238-5233

Kurta
3007 East Chambers
Phoenix, AZ 85052
Phone: 602-276-5533

Magni Systems, Inc.
9500 S.W. Gemini Drive
Beaverton, OR 97005
Phone: 503-626-6225 or 800-237-5964

MicroIllusions
17408 Chatsworth Street
Granada Hills, CA 91344
Phone: 818-360-3715 or 800-522-2041

Micro Magic
261 Hamilton Ave., #320B
Palo Alto, CA 94301
Phone: 415-327-9107

Microway
P.O. Box 79
Kingston, MA 02364
Phone: 508-746-7341

Mimetics Corp.
P.O. Box 1560
Cupertino, CA 95015
Phone: 408-741-0117

Mindware International
110 Dunlop St. W., Box 22158
Barrie, Ontario
Canada L4M 5R3
Phone: 705-737-5998 or 800-461-5441

Mitchell Ware Systems
P.O. Box 534
Southampton, PA 18966
Phone: 800-942-9273 or 215-228-7490

Moniterm
5740 Green Circle Drive
Minnetonka, MN 55343
Phone: 612-935-4151

Neriki Computer Graphics PTY Ltd.
Spectrum Centre, 200 Pacific Highway, Crows Nest
Sydney, Australia 2065

Octree Software
311 W. 43rd Street, Suite 904
New York, NY 10036
Phone: 212-262-3116

NewTek
115 West Crane Street
Topeka, KS 66603
Phone: 800-843-8934 or 913-354-1146

PAR Software Inc.
(distributed by Brown-Wagh)
P.O. Box 1089
Vancouver, WA 98666
Phone: 206-695-1368

Ronald Peterson
P.O. Box 614
Milford, NH 03055
Phone: 603-673-4009

Philadelphia Video Lab
2212-14 Walnut St.
Philadelphia, PA 19103
Phone: 215-567-3222

Polaroid Corporation
575 Technology Square-9P
Cambridge, MA 02139
Phone: 617-577-3796

Prentice Hall
One Gulf & Western Plaza
New York, NY 10022
Phone: 212-373-8500

Progressive Peripherals
464 Kalamath Street
Denver, CO 80204
Phone: 303-825-4144

PVS Publishing
3800 Botticelli, Suite 40
Lake Oswego, OR 97035
Phone: 503-636-8677

R&DL Productions
11-24 46th Avenue, 2A
Long Island City, NY 11101
Phone: 718-392-4090

RGB Video Creations
3944 Florida Blvd., Suite 102
Palm Beach Gardens, FL 33410
Phone: 407-622-0138

Radical Eye Software
Box 2081
Stanford, CA 94309
Phone: 415-322-6442

Right Answers Group
P.O. Box 3699
Torrance, CA 90510
Phone: 213-325-1311

Sci-Tech Corp.
1450 NW 78th Street
Miami, FL 33126
Phone: 305-591-1620

Scott, Foresman & Co.
99 Bauer Drive
Oakland, NJ 07436
Phone: 800-554-4411

Seven Seas Software
P.O. Box 411
Port Townsend, WA 98368
Phone: 206-385-1956

Seymor-Radix
P.O. Box 166055
Irving, TX 75016
Phone: 214-255-7490

Simon & Schuster
1230 Avenue of the Americas
New York, NY 10020
Phone: 212-698-7000

Software Visions
P.O. Box 3319
Framingham, MA 01701
Phone: 800-527-7014

Slide City
6474 Highway 11
Deleon Springs, FL 32028
Phone: 904-985-1103

Summagraphics Corporation
60 Silvermine Road
Seymour, CT 06483

SunRize Industries
3801 Old College Road
Bryan, TX 77801
Phone: 409-846-1311

Syndesis
20 West Street
Wilmington, MA 01887
Phone: 508-657-5585

TV One Productions
1027 Sussex Avenue
Deptford, NJ 08096
Phone: 609-848-5698

Vellum
37 Staffern Drive, Unit 3
Concord, Ontario
Canada L4K 2X2
Phone: 416-738-2300

Verlag
P.O. Box 3414
Providence, RI 02906
Phone: 401-831-4335

Very Vivid
302-1499 Queen Street West
Toronto, Ontario
Canada M6R 1A3
Phone: 416-738-6535

Videomaker, Inc.
381 East 4th Street
Chico, CA 95928
Escondido, CA 92025
Phone: 916-891-8410

Viking
40 West 23rd Street
New York, NY 10010
Phone: 212-337-5200

Wollner Associates
3306 Horseman Lane
Falls Church, VA 22042
Phone: 703-533-1236

SUBSCRIBE TO

Ahoy!'s
AmigaUser

Save more than 41% off the newsstand price

☐ One Year (12 issues) $27.95 (Outside US $36.95)
☐ Two Years (24 issues) $48.95 (Outside US $63.95)

☐ Payment enclosed: $________ ☐ Please bill me.
☐ MasterCard ☐ VISA Card #________________ Exp. Date________

Signature________________________________

Name________________________________

Address________________________________

City____________________State________Zip____________

U289

February 1989 *Ahoy!'s AmigaUser* Void After May 12, 1989

READER SERVICE CARD

To request additional information on any product in this issue of *Ahoy!'s AmigaUser* that is accompanied by a reader service number, circle the corresponding number below and mail this card. We will promptly forward your request to the designated companies.

101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310

A. Please check whether you are...
1. ☐ male ☐ female

B. What is your age?
1. ☐ under 18 2. ☐ 18-24 3. ☐ 25-34
4. ☐ 35-44 5. ☐ 45-54 6. ☐ 55-64 7. ☐ 65+

C. Education level completed
1. ☐ elementary 2. ☐ high school
3. ☐ junior college 4. ☐ college graduate
5. ☐ master's degree 6. ☐ PhD

D. From which of the following sources did you obtain your copy of *Ahoy!'s AmigaUser?*
1. ☐ newsstand 2. ☐ subscription (mail)
3. ☐ from a friend or family member
4. ☐ other ________________

If not currently a subscriber, do you plan to become one?
1. ☐ yes 2. ☐ no

Name________________________________

Address________________________________

City____________________State________Zip____________

February 1989 *Ahoy!'s AmigaUser* Void After May 12, 1989

READER SERVICE CARD

To request additional information on any product in this issue of *Ahoy!'s AmigaUser* that is accompanied by a reader service number, circle the corresponding number below and mail this card. We will promptly forward your request to the designated companies.

101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310

A. Please check whether you are...
1. ☐ male ☐ female

B. What is your age?
1. ☐ under 18 2. ☐ 18-24 3. ☐ 25-34
4. ☐ 35-44 5. ☐ 45-54 6. ☐ 55-64 7. ☐ 65+

C. Education level completed
1. ☐ elementary 2. ☐ high school
3. ☐ junior college 4. ☐ college graduate
5. ☐ master's degree 6. ☐ PhD

D. From which of the following sources did you obtain your copy of *Ahoy!'s AmigaUser?*
1. ☐ newsstand 2. ☐ subscription (mail)
3. ☐ from a friend or family member
4. ☐ other ________________

If not currently a subscriber, do you plan to become one?
1. ☐ yes 2. ☐ no

Name________________________________

Address________________________________

City____________________State________Zip____________

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 65 MT. MORRIS, ILL.

POSTAGE WILL BE PAID BY ADDRESSEE

Ahoy!'s AmigaUser

P.O. BOX 341
MT. MORRIS, IL 61054-9925

PLACE
STAMP
HERE

Ahoy!'s AmigaUser

P.O. BOX 8471
Boulder, CO 80329-8471

PLACE
STAMP
HERE

Ahoy!'s AmigaUser

P.O. BOX 8471
Boulder, CO 80329-8471

International Soccer



"Without a doubt the best of the soccer action games"

Amiga Computing, October 1988

If you're a soccer fan, then Microdeal's International Soccer is the game for you. Superb graphics, plus the ability to select team colors, wind direction and speed, wet or dry weather, and day or night game conditions, make this one of the best simulations ever. You can have high caliber competition under any conditions. One or two players can take on the computer, or two players can play against each other. With the optional four player adapter from Microdeal you can pit three players against the computer, two players against two players, or two against one. You won't believe the action. The animated crowd, electronic scoreboard, and on screen refereeing keep the gameplay fast and furious. Don't be left out of bounds. International Soccer is playing now!

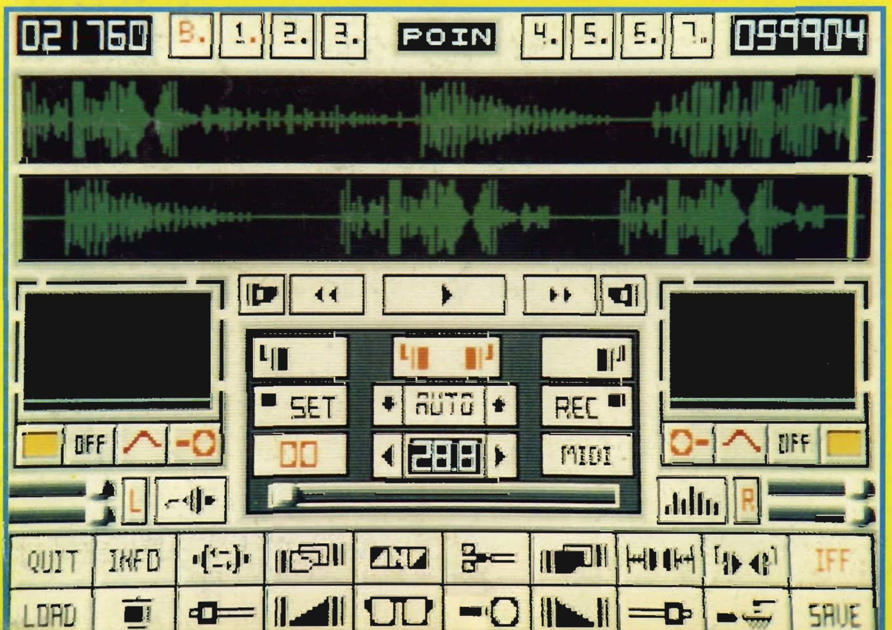
(Color only—1,2,3, or 4 joysticks required, optional 4 player adapter available)





A.M.A.S.

The Advanced MIDI Amiga Sampler



AMAS is a full featured Stereo audio digitizer complete with a full implementation MIDI interface, all built into a single stylish hardware unit that compliments your computer. There are no cumbersome extras needed. The digitizer accepts mono or stereo input via its line input sockets and is provided with an extra microphone socket for direct vocal input. The MIDI sockets consist of MIDI IN, OUT, and THRU. Hardware versions exist in A1000 and A500/2000 formats.

The software employs the ultimate graphics/mouse user interface. Features include:

- Left, Right or stereo digitizing
- Sampling rates of up to 28Khz
- Dual real time oscilloscopes (1 for each channel)
- Real time spectrum analysis
- Auto record trigger on input level
- Up to eight banks on 2 meg machines (200-250k required per bank)
- Up to 10 stereo samples per bank
- Load and Save samples in RAW or IFF data formats
- Filter ON/OFF where applicable

All Editing functions are available including: Cut, Paste, Insert, Delete, Copy, Overlay, Mix, Reverse, Fade In/Out, Volume Up/Down, Sample Compress/Expand, Filter, Stereo "Bounce", and Channel Swap.

Why settle for less than the best? Ask your dealer for a demonstration today!

MICRODEAL